



Natural Resources Conservation Service In cooperation with Cornell University Agricultural Experiment Station

# Soil Survey of Cattaraugus County, New York



## **How To Use This Soil Survey**

## **General Soil Map**

The general soil map, which is a color map, shows the survey area divided into groups of associated soils called general soil map units. This map is useful in planning the use and management of large areas.

To find information about your area of interest, locate that area on the map, identify the name of the map unit in the area on the color-coded map legend, then refer to the section **General Soil Map Units** for a general description of the soils in your area.

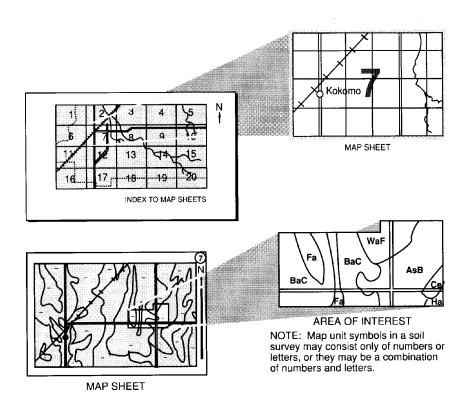
## **Detailed Soil Maps**

The detailed soil maps can be useful in planning the use and management of small areas.

To find information about your area of interest, locate that area on the **Index to Map Sheets**. Note the number of the map sheet and turn to that sheet.

Locate your area of interest on the map sheet. Note the map unit symbols that are in that area. Turn to the **Contents**, which lists the map units by symbol and name and shows the page where each map unit is described.

The **Contents** shows which table has data on a specific land use for each detailed soil map unit. Also see the **Contents** for sections of this publication that may address your specific needs.



This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (formerly the Soil Conservation Service) has leadership for the Federal part of the National Cooperative Soil Survey.

Major fieldwork for this soil survey was completed in 1999. Soil names and descriptions were approved in 2002. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 2002. This survey was made cooperatively by the Natural Resources Conservation Service and the Cornell University Agricultural Experiment Station. The survey is part of the technical assistance furnished to the Cattaraugus County Soil and Water Conservation District.

Soil maps in this survey may be copied without permission. Enlargement of these maps, however, could cause misunderstanding of the detail of mapping. If enlarged, maps do not show the small areas of contrasting soils that could have been shown at a larger scale.

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Cover: Prime farmland area of Chenango gravelly silt loam and Olean silt loam in the foreground, with areas of moderately steep Schuyler silt loam and Towerville silt loam in the background.

Additional information about the Nation's natural resources is available online from the Natural Resources Conservation Service at http://www.nrcs.usda.gov.

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## **Foreword**

This soil survey contains information that affects land use planning in Cattaraugus County. It contains predictions of soil behavior for selected land uses. The survey also highlights soil limitations, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

This soil survey is designed for many different users. Farmers, ranchers, foresters, and agronomists can use it to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the survey to plan land use, select sites for construction, and identify special practices needed to ensure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the survey to help them understand, protect, and enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. The information in this report is intended to identify soil properties that are used in making various land use or land treatment decisions. Statements made in this report are intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are shallow to bedrock. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. Broad areas of soils are shown on the general soil map. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described. Information on specific uses is given for each soil. Help in using this publication and additional information are available at the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

Ronald R. Alvarado State Conservationist Natural Resources Conservation Service

# Soil Survey of Cattaraugus County, New York

By Paul S. Puglia, Natural Resources Conservation Service

Fieldwork by Steven E. Antes, Gerald B. Brauen, Matthew W. Havens, Paul S. Puglia, Victoria S. Smith, and John P. Wulforst, Natural Resources Conservation Service

United States Department of Agriculture, Natural Resources Conservation Service, in cooperation with

Cornell University Agricultural Experiment Station

CATTARAUGUS COUNTY is located in the southwestern part of New York (fig. 1). The county is bounded on the north by Erie and Wyoming counties; on the west by Chautauqua County and on the east by Allegany County. The northwestern corner is bounded by the Cattaraugus Indian Reservation and the southern boundary is the north line of the state of Pennsylvania.

Cattaraugus County has a total land area of 811,600 acres, or approximately 1,268 square miles (USDA, 1997). Little Valley is the county seat.

The New York State Department of Environmental Conservation manages approximately 33,685 acres of land used for reforestation and wildlife areas. Also, there are 64,800 acres in Allegany State Park, which is managed by New York State Office of Parks Recreation and Historic Preservation.

In 1997, about 25 percent of the land area in the county was used for farming (U.S. Department of Commerce, 1997). Of this area, about 55 percent was used for cropland and pasture and about 30 percent was farm woodlots.

The number of farms in Cattaraugus County has steadily declined over the years. At its peak in 1935, there were 593,743 acres of farmland with 4,760 farms in the county compared with 252,564 acres in farmland and 1,211 farms in 1982. The 1997 Census of Agriculture lists 192,015 acres of farmland with 946 farms; however, the average size of the individual farms increased from 125 acres in 1935 to 203 acres in 1997.

Cattaraugus County is primarily in the Allegheny Plateau physiographic province, and the Erie-Ontario Plain province. In the plateau province the principal agricultural enterprise is dairy farming. Corn and hay are the main crops, but some small grain is grown. In 1997, about 51,152 acres was used for hay, 15,667 acres for corn silage, 4,657 acres for grain corn, and 2,260 acres for small grains, mainly oats. Another 50,000 acres was listed as non-cultivated cropland (U.S. Department of Commerce, 1997). In 1935, in contrast, hay was the most important crop both in acreage and value with 121,535 acres devoted to hay, 14,915 acres for corn silage, 1,016 acres harvested for grain corn, and 22,032 acres of small grains, mainly oats (USDA, 1940).

Dairy farming is the primary enterprise of the agriculture industry in Cattaraugus County. The production of vegetables and horticultural crops is a growing sector of the industry, primarily in the lake plain province with its moderate temperatures and longer frost free days. The main agricultural enterprise in this region is growing grapes, vegetables, orchard crops, or small fruit and nursery crops.

In addition to these products, maple syrup is an important commodity in the survey area. Cattaraugus County currently is rated ninth among the counties of New York in



Figure 1.—Location of Cattaraugus County in New York.

the production of maple syrup, with an average annual output of about 10,000 gallons.

More than 65 percent of Cattaraugus County is woodland; therefore, commercial timber production is a viable industry. Most of the natural stands are represented by mixed hardwoods dominated by sugar maple, red oak, black oak, white ash, and American beech. Many wooded areas have been cut over several times for timber production.

This survey updates an older soil survey of Cattaraugus County issued March 1940 (USDA, 1940). It provides larger aerial photographic maps, which shows the soils and cultural features in greater detail. The present survey also provides more current soil interpretation.

## **General Nature of the County**

This section provides general information about Cattaraugus County. It describes the history and development, physiography and geology, drainage, water supply, transportation facilities, and climate.

## **History and Development**

When first explored by white men, this area comprising of Cattaraugus County, was covered by vast forests of eastern white pine, eastern hemlock and mixed hardwoods among which sugar maple, American beech, northern red oak, and black cherry were dominant. Cattaraugus County was part of the original Holland Land Company holdings purchased from the Indians in 1787. The Allegany Indian Reservation was established in 1797 and includes territory on both sides of the Allegheny River and Allegheny Reservoir, from the Pennsylvania state line east to Vandalia. The Cattaraugus Indian Reservation, in the extreme northwestern corner of

the county, and Oil Springs near Cuba, New York are also under the jurisdiction of the Seneca Nation of Indians. The act of 1808 established Cattaraugus County with its present boundaries from the territory of Genesee County.

The first settlement was made by Quakers, a school for the Indians, in 1798 at Oldtown in the Allegany Indian Reservation. Settlement began at Olean Point about 1804, and the county government was established in 1817. In 1807 the first trip from Olean to Pittsburgh was made on a raft and marked the beginning of an immense lumbering industry. This area flourished and the village of Olean became the gateway to the western part of the country by way of the Allegheny and Ohio rivers.

Many of the present inhabitants of Cattaraugus County are descendents of the early settlers. In 1970, the population of the county was listed as 81,666 (Ellis, 1976). Olean, the largest city, had a population of 19,169, while Salamanca was second with 7,877 inhabitants. Salamanca reached its peak in 1940 with a population of 9,011, and Olean had a population of 22,884 in 1950. The 1990 census reports a population of 16,946 for the city of Olean, 6,566 for Salamanca, and 84,234 for Cattaraugus County. The county's rural population has shown a slow but steady increase, while there has been a slight decline in the population of the cities.

Education has been important since the county's early development. St. Bonaventure located between the city of Olean and the village of Allegany was founded in 1858 by the Franciscan Friars, Holy Name Province. St. Bonaventure is a Catholic university in the 750-year-old Fransican tradition of learning.

The Kinzua Dam, constructed from 1960 to 1965, is located 6 miles south of the New York and Pennsylvania boundary on the Allegheny River. The primary benefits of the Kinzua Dam and Allegheny Reservoir are flood control, low flow augmentation, hydroelectric power, fish and wildlife management, and recreation. The Allegheny Reservoir provides adequate water supply for domestic, industrial, and navigational needs for the Allegheny River. The reservoir, in New York state, is surrounded by the Allegany Indian Reservation and to a lesser extent by Allegany State Park. The summer pool has approximately 10,000 acres of surface water within Cattaraugus County.

The first crude oil in the United States was found on a plot owned by the Seneca Nation of Indians at Oil Springs, near Cuba Lake, in 1627 by a Franciscan monk. The first oil well in this county was drilled in 1865 near Limestone, in what is now Allegany State Park. As many as 5,100 producing wells were counted in the county. Most of these are no longer in production, but one of them drilled in 1877 near Allegany, is still active and is ranked among the oldest well in the area. Today, working wells may be seen in the Olean-Allegany-Knapp Creek area (fig. 2).

Cattaraugus County is well supplied with both highways and railroads. Although it contains many productive farms and a variety of light industries, increasing emphasis is being placed on resort and recreational development with Allegany State Park, Allegheny Reservoir, and several ski resorts as the central attraction.

## Physiography and Geology

Among New York counties, Cattaraugus County includes both glaciated and unglaciated landscapes. Within the borders of Cattaraugus County there are three physiography provinces: the Erie-Ontario Plain province, the glaciated Allegheny Plateau province, and the unglaciated Allegheny Plateau province. The Erie-Ontario Plain province is a small area of lowland in the northwest corner of the county which occupies less than 5 percent of the county. It is characterized with low relief, gently terraced by wave action in former pre-glacial lakes, with a series of very narrow ravines cut across by a number of streams. The lowest elevation in Cattaraugus County is just over 600 feet where Cattaraugus Creek leaves the county at the extreme northwest corner.



Figure 2.—Typical oil well pump that dot the landscape in the oil production areas in the Olean-Allegany-Knapp Creek areas.

The glaciated Allegheny Plateau province occupies about 75 percent of the county. The plateau is characterized by steep valley walls, wide ridge tops and flat-topped hills between drainageways. The Allegheny Plateau in Cattaraugus County is intersected by a number of broad, flat-bottomed valleys, presently occupied by sluggish, meandering streams. The topography is strongly influenced by the underlying bedrock, which is nearly level bedded. The Allegheny Plateau extends south from Cattaraugus Creek to just north of the Allegheny River. On the glaciated Allegheny Plateau, the elevation rises from about 1,400 feet in the major valleys to 2,200 feet. The greater part of the upland plateau lies between elevations of 1,600 to 2,000 feet.

The unglaciated Allegheny Plateau province occupies the lower 20 percent of the county, following the general course of the Allegheny River. This crudely triangular area of New York, the so called Salamanca Re-entrant, escaped glaciation and is the most northerly region of unglaciated landscapes in eastern North America (Muller, 1977). The contrast in relief between the glaciated and unglaciated parts of the county are striking. This area has more rugged topography, has longer and steeper slopes, has deeply incised and V-shaped valleys, and does not have the irregular, hilly characteristics typical of much of the glaciated areas. The elevation rises from 1,284 feet, at the point where the Allegheny River enters Pennsylvania, to about 2,400 feet at the top of the plateau. The maximum recorded elevation, 2,430 feet, occurs at Claire benchmark in the town of Allegany, USGS Knapp Creek New York, Topographic Quadrangle.

From the unglaciated summits south of Olean to the floodplain of Cattaraugus Creek northwest of Gowanda, the total relief in Cattaraugus County is 1,825 feet, a range of elevation greater than any other western New York county.

Cattaraugus County contains bedrock that dates back 300 to 400 million years to the Devonian, Mississippian, and Pennsylvanian periods of the Paleozoic Era (Tesmer, 1975). Many of these rocks contain the remains of typical shallow water marine invertebrates of that time. Formations of the Upper Devonian are at the lower elevations, while those of the Pennsylvanian are at the higher elevations. In general, the older rock strata occur in northern Cattaraugus County while the younger rocks are found to the south near the Pennsylvania state line, capping the tops of the highest hills. The stratum of bedrock is generally horizontal but has a slight dip to the south or south-southwest, of approximately 40 feet per mile (Flint, 1947).

The oldest bedrock formation is of the Devonian period. In Cattaraugus County it is the Hanover Shale. The Hanover Shale, which is of the Java Group, consists of gray shale about 90 feet thick. It occurs as a narrow band in the extreme northeastern part of the county and is exposed along the cliffs of Cattaraugus Creek.

The Canadaway Group, which is a succession of black and gray shales that include some thin siltstone layers, occurs above the Java Group. Total thickness of the Canadaway Group is about 1,000 feet and is subdivided into seven members. The oldest of these are the Dunkirk Shale, which is about 85 feet thick, and is well exposed along the cliffs of Big Indian Creek and Cattaraugus Creek near the village of Perrysburg.

The South Wales Shale, which overlies the Dunkirk Shale, is dominantly gray shale approximately 50 feet thick. The South Wales exposures are along Big Indian Creek in the town of Perrysburg, as well as along Cattaraugus Creek upstream from Versailles to Gowanda. Above the South Wales Shale is the Gowanda Shale member, which consists of 280 feet of mainly gray shale that has thin bands of black shale and gray siltstone. This member is exposed along Cattaraugus Creek upstream from the village of Gowanda and along Big Indian Creek and parts of Little Indian Creek in the town of Perrysburg.

The next member of the Canadaway Group is the Laona Member, which is of variable thickness, locally as much as 20 feet thick. The Laona consists of light gray siltstone. The most prominent exposures of this unit are along Big Indian Creek and Little Indian Creek in northwestern Cattaraugus County. Above the Laona Member is about 160 feet of gray shale that includes thin beds of gray siltstone. This shale, called the Westfield Member, is best viewed along the east branch of Big Indian Creek in the town of Perrysburg.

The Shumla Member overlies the Westfield Member of the Canadaway Group. This siltstone member is about 5 feet thick with exposures along the east branch of Big Indian Creek in the town of Perrysburg. The Shumla Member consists largely of light gray siltstone. The upper 400 feet of the Canadaway Group is represented by the Northeast Member, which consists of gray shale that includes considerable interbedded gray siltstone. Although limited exposures of the Northeast Shale occur in road cuts and stream cuts in the town of Dayton, the most significant exposures can be seen along the road south of the hamlet of Persia.

The Conneaut Group, also referred to as the Chadakoin Formation, consists of various transitional beds, which have not been subdivided into members in Cattaraugus County. The thickness of the Conneaut Formation varies from about 550 feet to 750 feet in Cattaraugus County. The basal portion contains gray siltstone or fine sandstone with some interbedded gray shales and silty shales. The middle and upper parts consist of interbedded gray shale and gray siltstone. Conneaut exposures are too numerous to list completely; they occur in nearly every township as seen on US Geologic Maps (Richard and Fisher, 1970). Some of the extensive exposures include road and stream cuts in the towns of New Albion, Leon, and The Narrows in Napoli.

The Conewango Group was deposited at the close of the Devonian period. This group, which varies from 425 to 525 feet thick, is divided into the Venango and

Oswayo formations. The Venango Formation, also referred to as the Cattaraugus Formation, includes several beds of conglomerate about 250 to 400 feet thick. In Cattaraugus County this formation is further subdivided into three members whose precise stratigraphic positions are still undetermined (Tesmer, 1975). These conglomerate beds include the Pope Hollow, Salamanca, and Wolf Creek Conglomerate members. These conglomerates are similar in lithology. They contain pebbles that generally range from 1/4 to 2 inches in size. These flat discoidal pebbles are usually milky quartz generally parallel to bedding and imbedded in a dark gray quartzitic matrix. The most prominent exposures occur adjacent to Little Rock City Road and at Little Rock City. Many less accessible conglomerate outcrops occur from the village of Little Valley south to Allegany State Park. Loose, slumped blocks of conglomerate are widespread, and care must be taken not to mistaken these boulders for bedrock exposure.

The Oswayo Formation overlies the Cattaraugus Formation and consists of about 150 to 210 feet of gray to olive-green shales interbedded with thin layers of micaceous siltstone and sandstone. Oswayo Formation exposures occur along road cuts at the Allegany State Park entrance road south of the city of Salamanca, and in road ditch exposures near Thunder Rocks in Allegany State Park.

The Pocono Group was deposited during the Lower Mississippian period and is represented by two conglomerates or sandstone separated by sandy shale beds. In Cattaraugus County, the Pocono Group is represented by only the Knapp Formation. This formation, about 100 feet thick, consists of conglomerate or gray sandstone separated by sandy shale beds. The conglomerate is loosely cemented with small-flattened discoidal quartz pebbles. The flat pebbles of the Knapp Formation indicate a marine environment, in contrast to the more spherical pebbles of the overlying Olean Conglomerate that reflects an alluvial or stream environment. Knapp Conglomerate exposures occur as a caprock for various hills in the towns of South Valley, Red House, and Limestone; and in the vicinity of the hamlets of Knapp Creek and Rock City.

The youngest bedrock in Cattaraugus County is of the Pottsville Group deposited during the Lower Pennsylvanian period (Tesmer, 1975). The Pottsville Group consists of the Olean Conglomerate and the Sharon Shale. The Olean Conglomerate overlies the Knapp Conglomerate and is about 80 feet thick. The Olean varies from a massive conglomerate with well-rounded pebbles to coarse quartz sandstone containing only a few pebbles. The quartz pebbles range from 0.25 to 3 inches in diameter and are spherical, indicating an alluvial or stream environment. Prominent exposures occur as caprock on various hills at higher elevations at Thunder Rocks in Allegany State Park; in the vicinity of Flatiron Rock; and on various hills in the town of Allegany particularly at Rock City Park. During World War II, quartz pebbles from the Olean conglomerate were used for the manufacture of ferro-silicon at Niagara Falls, New York. The Sharon Shale overlying the Olean Conglomerate consists of several feet of black shales. The Sharon Shale is not well exposed in Cattaraugus County and only a few feet of black shale occur above the Olean Conglomerate in the vicinity of Rock City Park.

Cattaraugus County experienced several advances and retreats of glacial ice during the Pleistocene ice age. The ice age began about 300,000 years ago and ended during the late Wisconsin glaciation, about 12,000 to 17,000 years ago (Muller, 1977). In Cattaraugus County, the earlier glaciation was covered or destroyed by two later Wisconsin glacial advances, an earlier advance by the Altonian substage from the northeast, and the later Woodfordian substage from the northwest (Muller, 1977). The glacial advance during Altonian time moved into Cattaraugus County from the northeast and deposited sediments referred to as the Olean drift. The Woodfordian substage advanced from the northwest and deposited sediments referred to as the Kent drift. Terminal moraines and end moraines are associated with these glacial advances. A 75 mile long portion of terminal moraine is found in southwestern New York state. Although much of the terminal moraine is in Pennsylvania, it swings

northward making a curve through Cattaraugus County. The area south of the terminal moraines is referred to as the Salamanca Re-entrant and is the only part of New York state that has not been glaciated. With each southern movement, the ice picked up soil material and pieces of bedrock, and ultimately redeposited a mixture of unconsolidated material of varying size, shape, and mineral content. The last advance stripped earlier deposits and laid down the mantle in which most of the present-day soils formed.

As the climate warmed and the melting of the ice overcame the glacial advance, the glacier began to recede. The first areas to be exposed were the uplands, where the ice was the thinnest. Because the deposited material was quite variable, different soils formed in it. The mixture of rock fragments and finer particles deposited by the ice in these upland areas is called glacial till. The thickness of this till is quite variable and can range from a few feet on some hilltops to more than 10 feet below the higher ridges. Some examples of soils that formed in deep glacial till are those of the Mardin, Volusia, and Napoli series. The soils of the Ischua, Monguap, and Towerville series are examples of soils that formed in glacial till that are only 20 to 40 inches thick over bedrock.

As the glacial ice melted and receded, further exposing valley areas, large quantities of melt water discharging from the glacial front carried rock and soil debris, which was deposited as valley train terraces, kames and eskers. Nearly level or undulating valley train terrace deposits occupy the floors of many valleys. All of these postglacial fluvial deposits generally are referred to as outwash or glaciofluvial deposits, and consist mainly of stratified sand and gravel. Chenango and Castile soils are examples of soils that formed in glacial outwash deposits.

Before glaciation, the pre-glacial Allegheny River and its tributaries flowed northward to Cattaraugus Creek and then into the Lake Erie basin. As the glacier continued to retreat northward, melt water was trapped in the larger valleys between moraines to the south and the ice front. Consequently, glacial lakes were formed in the major valleys. Fine soil particles carried in suspension by the melt waters settled to the bottom of these glacial lakes. Glaciolacustrine deposits such as these are on the floor and lower side slopes of the valleys. Rhinebeck and Canandaigua soils, which are free of stones, are examples of soils that formed in these glaciolacustrine deposits.

Erosion and sedimentation have been taking place continually since the ice retreated. Steep, fan-shaped alluvial deposits have accumulated at the mouth of the lateral streams, where the velocity of the water slowed and the sand and gravel dropped out of suspension. Chenango and Castile soils formed in these deltaic deposits. Silty alluvial sediments from flood-prone streams are examples of the more recent deposits that are not related to glaciation. Middlebury and Wakeville soils formed in recent alluvial deposits on flood plains.

The southern section of Cattaraugus County is unglaciated. The soils in these areas formed in residuum of the Mississippian and Pennsylvanian bedrock or in colluvial deposits of the side slopes. The Mississippian and Pennsylvanian bedrock in these areas are primarily sandstone, siltstone or sandstone conglomerate. The Mandy soils formed in residuum weathered from sandstone and siltstone, and the Knapp Creek and Flatiron soils formed in residuum weathered from sandstone conglomerate. The Carrollton, Kinzua, Gilpin and Rayne soils formed in residuum weathered from sandstone and siltstone from the members of the Mississippian and Pennsylvanian bedrock and from the Devonian shale where the overlying, younger sandstone has been eroded away. The reworked colluvium from the higher areas is the parent material for the Onoville, Shongo, Buchanan, and Portville colluvial soils.

## **Drainage**

The drainage system of Cattaraugus County is separated into two systems: the Lake Erie-St. Lawrence River system and the Allegheny-Ohio-Mississippi River

system. The drainage from the northern one-third of the county flows northward and then west into the Lake Erie-St. Lawrence system and the southern two-thirds of the county flows southward into the Allegheny-Ohio-Mississippi River system.

The principal stream of Cattaraugus County is the Allegany River, which rises in Pennsylvania, enters New York at the southeastern corner of the county, swings north and then southwest to Pennsylvania near the southwestern corner of the county. The Allegany River is a broad and gentle stream with broad alluvial flats winding its way between hills on either side of its shores. In its course through New York several tributaries joining the Allegany from the south include Quaker Run, Red House, Tunungwant, Chipmunk, and Four Mile Creek. Those flowing in from the north are Cold Spring, Little Valley, Great Valley, Five-Mile, Dodge, Haskell, and Oswayo Creek. The junction of Ischua and Oil Creek form Olean Creek which flows into the Allegany River from the north. A considerable portion of the county adjoining the western border is drained by Conewango Creek and its tributaries. Conewango Creek rises near New Albion and flows northwest and then southward through a broad, flat valley 1.5 to 3.0 miles wide. For most of its length, Conewango Creek has fall of less than 2 feet per mile. These low gradients cause the creek to meander back and forth across the valley floor. Where the Conewango Creek joins its water with those of the Allegany River in Pennsylvania, the two streams are about equal in volume.

In the northern part of the county, the principal drainage system for the upland plateau is Cattaraugus Creek and its tributaries. Next to the Allegany River in importance is Cattaraugus Creek, which rises in Wyoming County flowing in a west and northwest course into Lake Erie. In some places it flows through wide and fertile alluvial flats, but in the western part it passes between cliffs from 100 to 350 feet in height. Cattaraugus Creek forms the boundary line between the counties of Cattaraugus and Erie. Numerous tributaries, rising in the county, enter Cattaraugus Creek from the south. Of these are the Connoisarauley, which flows into Cattaraugus Creek near the center of the county, and the South Branch of Cattaraugus Creek, which enters several miles downstream. Other major streams which flow into Cattaraugus Creek include Mansfield Creek, Buttermilk Creek, Elton Creek, and Clear Creek.

## Water Supply

The main sources of water in Cattaraugus County are from drilled wells, streams, and surface water stored in reservoirs.

There are 14 public water systems in the county. The largest system is that for Olean, which serves the urban and suburban area around the city of Olean. It draws water from Olean Creek and several wells within the city limits. Gowanda is the only village that uses surface water stored in an upland reservoir. The rest of the public water systems use drilled wells as a source of water.

Water for rural areas and for other developments is obtained largely from drilled wells. Water for a few homes in rural sections is provided by shallow wells or developed springs. Ponds or streams also furnish water for livestock.

Although ground water is available everywhere in the area, bedrock wells generally provide lower yields and a poorer quality of water. The most productive water-bearing deposits are those that are in aquifers consisting of unconsolidated deposits derived from glacial outwash and from deltaic deposits of sand and gravel.

## Transportation Facilities

Cattaraugus County is served by several railroad systems. Salamanca's location is crucial in that it is located on the north/south and east/west crossroads for the rail system. A number of short line railroads service the area with connections to the main lines in Salamanca.

Interstate 86 (also known as the Southern Tier Expressway and formerly designated as State Route 17) is the main highway running from east to west in the southern part of the county. New York Route 219 and Route 16 are the two main highways running from north to south connecting Cattaraugus County with the Buffalo area to the north and Bradford area to the south. Other New York routes that run in a northeast or northwest direction are Routes 62, 353, 242, 98, and 240. New York Routes 394, 446, 305, and 417 run in an east/west direction in the southern part of the county.

Commercial airline service is available at the Olean County Airport, just north of Olean. Commercial airline service also is available at Buffalo Niagara Airport in Buffalo, New York and airports at Bradford and Erie, Pennsylvania.

#### Climate

Table 1 gives data on temperature and precipitation for the survey area as recorded at Little Valley, New York, in the period from 1948 to 1999. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on length of the growing season.

In winter, the average temperature is 24 degrees F and the average daily minimum temperature is 15 degrees F. The lowest temperature on record at Little Valley was - 28 degrees F. In summer, the average temperature is 65 degrees F and the average daily maximum temperature is 77 degrees. The highest temperature on record, which occurred at Little Valley, is 96 degrees F.

Growing days are shown in table 3. They are equivalent to "heat units." During the month, growing degree-days accumulate by the amount that the average temperature each day exceeds a base temperature (40 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

The total annual precipitation is about 49 inches. Of this, 25 inches, or about 50 percent, usually falls in April through September. The growing season for most crops falls within this period. In 2 years out of 10, the rainfall in April through September is less than 16 inches. The heaviest 1-day rainfall during the period of record at Little Valley was 3.6 inches.

The average seasonal snowfall is about 146 inches. The greatest snow depth for one month during the period of record was 100 inches. On the average, 94 days of the year have at least 1 inch of snow on the ground. The number of such days varies greatly from year to year.

## **How This Survey Was Made**

This survey was made to provide information about the soils and miscellaneous areas in the survey area. The information includes a description of the soils and miscellaneous areas and their location and a discussion of their suitability, limitations, and management for specified uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They dug many holes to study the soil profile, which is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

The soils and miscellaneous areas in the survey area are in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous

areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept or model of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States (USDA, 1998), is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as from field-observed soil properties and characteristics, to determine the expected behavior of the soils for different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

## Map Unit Composition

A map unit delineation on a soil map represents an area dominated by one major kind of soil or an area dominated by two or three kinds of soil. A map unit is identified and named according to the taxonomic classification of the dominant soil or soils. Within a taxonomic class there are precisely defined limits for the properties of the

soils. On the landscape, however, the soils are natural objects. In common with other natural objects, they have a characteristic variability in their properties. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of soils of other taxonomic classes. Consequently, every map unit is made up of the soil or soils for which it is named and some soils that belong to other taxonomic classes. These latter soils are called inclusions or included soils.

Most inclusions have properties and behavioral patterns similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting (similar) inclusions. They may or may not be mentioned in the map unit descriptions. Other inclusions, however, have properties and behavior divergent enough to affect use or require different management. These are contrasting (dissimilar) inclusions. They generally occupy only small areas and therefore cannot be shown separately on the soil maps because of the scale used in mapping. The inclusions of contrasting soils are mentioned in the map unit descriptions. A few inclusions may not have been observed and consequently are not mentioned in the descriptions, especially where the soil pattern was so complex that it was impractical to make enough observations to identify all of the kinds of soil on the landscape.

The presence of inclusions in a map unit in no way diminishes the usefulness or accuracy of the soil data. The objective of soil mapping is not to delineate pure taxonomic classes of soils, but rather to separate the landscape into segments that have similar use and management requirements. The delineation of such landscape segments on the map provides sufficient information for the development of resource plans, but onsite investigation is needed to plan for intensive uses in small areas.

## **General Soil Map Units**

The general soil map in this publication shows broad areas that have a distinctive pattern of soils, relief, and drainage. Each map unit on the general soil map is a unique natural landscape. Typically, it consists of one or more major soils or miscellaneous areas and some minor soils or miscellaneous areas. It is named for the major soils or miscellaneous areas. The components of one map unit can occur in another but in a different pattern.

The general soil map can be used to compare the suitability of large areas for general land uses. Areas of suitable soils can be identified on the map. Likewise, areas where the soils are not suitable can be identified.

Because of its small scale, the map is not suitable for planning the management of a farm or field or for selecting a site for a road or building or other structure. The soils in any one map unit differ from place to place in slope, depth, drainage, and other characteristics that affect management.

The general soil map of Cattaraugus County joins with those of adjacent counties having published soil surveys, which are identified in the following paragraphs.

Allegany County, New York—This county does not have a modern published soil survey and general soil map. A survey is currently in progress.

Chautauqua County, New York—Except for differences in the design of the legend for the detailed map units, the general soil maps of Cattaraugus and Chautauqua counties have a satisfactory join.

*Erie County, New York*—Except for differences in the design of the legend for the detailed map units, the general soil maps of Cattaraugus and Erie counties have a satisfactory join. Erie County is separated by a double line stream.

McKean County, Pennsylvania—Except for differences in the design of the legend for the detailed map units that include soils that formed in mesic and frigid residual material and are along the border with McKean County, the general soil maps of McKean County and Cattaraugus County can be joined. The difference in temperature regimes will be resolved when McKean County is digitized and frigid soils are correlated. The Cattaraugus County Soil Survey will be accepted as correct on its borders with these counties. In all cases, delineations separating general soil map units in areas of residual material from those in areas of glacial outwash and alluvium join across the survey boundary.

Seneca Nations of Indians, New York—The published soil survey of the Seneca Nations of Indians does not contain a general soil map.

Warren County, Pennsylvania—Except for differences in the design of the legend for the detailed map units that include soils formed in mesic and frigid residual material and are along the border with Warren County, the general soil maps of Warren County and Cattaraugus County can be joined. The difference in temperature regimes will be resolved when Warren County is digitized and frigid soils are correlated. The Cattaraugus County Soil Survey will be accepted as correct on its borders with these counties. In all cases, delineations separating general soil map units in areas of residual material from those in areas of glacial outwash and alluvium join across the survey boundary.

Wyoming County, New York—Except for differences in the design of the legend for the detailed map units, the general soil maps of Cattaraugus and Wyoming counties have a satisfactory join.

The general soil map units in this survey have been grouped into general kinds of landscape for broad interpretive purposes. Each of the broad groups and the map units in each group are described in the following pages.

## **Map Unit Descriptions**

## Areas Dominated by Very Deep Soils that Do Not Have a Fragipan and that Formed in Glacial Till

These soils make up about 10 percent of the county. They are on valley plains and uplands. They are dominantly very deep, well to somewhat poorly drained, and nearly level to very steep.

## 1. Valois-Chautauqua-Busti

Dominantly gently sloping to strongly sloping, very deep, well drained to somewhat poorly drained, medium textured soils; on uplands

This map unit consists of soils that formed in loamy glacial till derived mainly from siltstone, sandstone, and some shale. The landscape consists dominantly of broad, rolling areas on valley plains and on some dissected side slopes on the upland plateau in the western part of the county. These areas are associated with terminal and lateral moraines. Slopes are dominantly 3 to 15 percent but range from 0 to 50 percent.

This unit makes up about 5 percent of the county and consists of 35 percent Valois soils, 25 percent Chautauqua soils, 20 percent Busti soils, and 20 percent soils of minor extent.

The Valois soils formed in very deep glacial till that is derived from sandstone, siltstone, and shale and commonly is intricately intermingled with or underlain by very gravelly glacial outwash. These soils are medium textured and moderately coarse textured, well drained and gently sloping to very steep. They are on low knolls, ridges, and hills on the lower valley sides and valley floors. The rate of water movement is moderate in the subsoil and moderate or moderately rapid in the substratum. The seasonal high water table is at a depth of more than 6 feet.

The Chautauqua soils are moderately well drained, medium textured, and nearly level to moderately steep. They are on convex hilltops and side slopes that receive little runoff from the adjacent soils. The rate of water movement is moderate in the surface layer and subsoil and moderately slow in the substratum. A water table is usually present in the middle part of the subsoil from late fall through spring.

The Busti soils are somewhat poorly drained and dominantly medium textured. They are nearly level to strongly sloping. They are in undulating areas, on the lower side slopes, and along drainageways that commonly receive runoff from the higher adjacent soils. The rate of water movement is moderately slow or moderate in the surface layer and subsoil, and slow or moderately slow in the substratum. A water table is in the upper part of the subsoil from late fall through spring.

The soils of minor extent include Ashville, Chadakoin, Dalton, Erie, Holderton, Red Hook, and Wayland soils. The poorly drained Ashville soils are along drainageways, in depressional areas. The well-drained Chadakoin soils are in areas where these soils adjoin glacial till. The somewhat poorly drained Dalton and Erie soils are on uplands and have a fragipan. The somewhat poorly drained Red Hook soils are in lower outwash plains and contain more rock fragments in the subsoil. The somewhat poorly drained Holderton and poorly drained Wayland soils are along the narrow drainageways that are adjacent to some areas of the unit.

Most areas of this unit have been cleared and are farmed. Scattered areas of the wetter soils and the steep soils on side slopes remain wooded, or are idle land covered with brush. Many areas at the higher elevations and along escarpments that were cleared for farming are now idle land or have reverted to woodland. The major

soils are better suited to corn, small grain, and hay than many of the other soils in the county. Stripcropping is common. Erosion control and supplemental drainage of the wetter areas are the main management needs in cultivated areas. The depth to the saturated zone and the moderately slow movement of water in the substratum are the main limitations affecting community development.

## 2. Fremont-Schuyler

Dominantly gently to strongly sloping, very deep, somewhat poorly drained and moderately well drained, medium to moderately fine textured soils that has a low content of lime; on uplands

This map unit consists of soils that formed in acid glacial till derived mainly from shale, siltstone, and some sandstone. The landscape is dominantly broad summits and saddles and dissected side slopes on plateaus. The unit is mainly in the north central and northwestern part of the county. Slopes are dominantly 3 to 15 percent but range from 0 to 50 percent.

This unit makes up 2 percent of the county and consists of about 50 percent Fremont soils, 30 percent Schuyler soils, and 20 percent soils of minor extent.

The Fremont soils are somewhat poorly drained and are nearly level to strongly sloping. They are on broad upland flats, in saddles, and on side slopes. The subsoil and substratum are medium to moderately fine textured. The rate of water movement is moderate in the surface layer, moderately slow or moderate in the upper part of the subsoil, and very slow or slow in the lower part of the subsoil and substratum. A seasonal high water table is in the upper part of the subsoil from late fall through spring.

The Schuyler soils are moderately well drained and are gently sloping to very steep. They are in convex areas on the summits and dissected side slopes of the plateau. The subsoil and substratum are medium textured to moderately fine textured. The rate of water movement is moderate in the surface layer, moderate or moderately slow in the subsoil, and slow or moderately slow in the substratum. A seasonal high water table is in the lower part of the subsoil from late fall through spring.

The soils of minor extent include Towerville, Orpark, Ashville, Canaseraga, Mardin, and Volusia soils. The moderately well drained Towerville soils and the somewhat poorly drained Orpark soils are the most extensive of the minor soils. They are in many areas where shale bedrock is at a depth of 20 to 40 inches below the surface. The poorly drained Ashville soils are on flats or along drainageways. The moderately well drained Canaseraga and Mardin soils and the somewhat poorly drained Volusia soils are in upland areas and have a dense fragipan in the subsoil.

Most areas of this unit are used for crops grown in support of dairy farming. Some areas were originally cleared and farmed, but have now been reforested or are naturally reverting to woodland. The difficulty of controlling erosion and installing drainage systems is the main limitation affecting farming. The depth to the saturated zone, the slope, and the slow or very slow movement of water in the substratum are the main limitations affecting community development.

#### 3. Salamanca-Almond

Dominantly gently to strongly sloping, very deep, somewhat poorly drained and moderately well drained, medium to moderately fine textured soils that have a low content of lime; on uplands above elevations of 1,800 feet

This map unit consists of soils that formed in acid glacial till derived mainly from shale, siltstone, and some sandstone. The landscape is dominantly broad summits and saddles and dissected side slopes on plateaus at elevations above 1,800 feet. The unit is mainly in the central part of the county. Slopes are dominantly 3 to 15 percent but range from 0 to 35 percent.

This unit makes up 3 percent of the county and consists of 55 percent Salamanca soils, 30 percent Almond soils, and 15 percent soils of minor extent.

The Salamanca soils are moderately well drained and are gently sloping to steep. They are in convex areas on the summits and dissected side slopes of the plateau. The subsoil and substratum are medium to moderately fine textured. The rate of water movement is moderate in the surface layer and upper part of the subsoil, moderately slow to very slow in the lower part of the subsoil and in the substratum. A seasonal high water table is in the lower part of the subsoil from late fall through the spring.

The Almond soils are somewhat poorly drained and are nearly level to strongly sloping. They are on broad upland flats, in saddles, and on side slopes. The subsoil and substratum are medium textured and moderately fine textured. The rate of water movement is moderate or moderately slow in the subsoil and slow to very slow in the substratum. A seasonal high water table is in the upper part of the subsoil from late fall through spring.

The soils of minor extent include Ischua, Gretor, Yorkshire, and Napoli soils. The moderately well drained Ischua soils and the somewhat poorly drained Gretor soils are the most extensive of the minor soils. They are in many areas where shale bedrock is at a depth of 20 to 40 inches below the surface. The moderately well drained Yorkshire and the somewhat poorly drained Napoli soils are in upland areas and have a dense fragipan in the subsoil.

Most areas of this unit are used for crops grown in support of dairy farming. The use of short-season or early maturing crop varieties is recommended. Many areas at the higher elevations were originally cleared and farmed, but have now been reforested or are naturally reverting to woodland. The difficulty of controlling erosion and installing drainage systems is the main limitation affecting farming. The depth to the saturated zone, the slope, and the slow or very slow movement of water in the substratum are the main limitations affecting community development.

## Areas Dominated by Very Deep Soils that Have a Fragipan and that Formed in Glacial Till

These soils make up 29 percent of the county. They are on upland and valley sides. They are dominantly very deep, somewhat poorly drained to moderately well drained, and nearly level to moderately steep.

## 4. Erie-Langford

Dominantly gently sloping to strongly sloping, very deep, somewhat poorly drained and moderately well drained, medium textured soils that have a fragipan and a medium content of lime; on uplands

This map unit consists of soils that formed in loamy glacial till derived from siltstone, sandstone, shale and some limestone. The landscape dominantly consists of broad, divided hilltops and hillsides on the upland plateau in the northern part of the county. Some areas have distinct drumlins. Slopes are dominantly 3 to 15 percent but range from 0 to 25 percent.

This unit makes up about 5 percent of the county and consists of 55 percent Erie soils, 25 percent Langford soils, and 20 percent soils of minor extent.

The Erie soils are somewhat poorly drained, nearly level to strongly sloping, and dominantly medium textured. They are on concave foot slopes, on the lower hillsides, and in broad divides. Some areas are along drainageways that commonly receive runoff from the higher adjacent slopes, and some are on flats where surface water is removed slowly. The rate of water movement is moderate in the surface and subsurface layer, and slow in the fragipan and substratum. The fragipan, which occurs at a depth of 10 to 21 inches, restricts root growth and forms a perched

seasonal high water table in the upper part of the subsoil from late fall through spring and during other excessively wet periods.

The Langford soils are moderately well drained, gently sloping to moderately steep, and dominantly medium textured. They are in convex areas on hillsides, divides, ridges, low knolls, and hillsides. The rate of water movement is moderate in the surface layer and the upper part of the subsoil, and slow or very slow in the fragipan and substratum. The fragipan, which occurs at a depth of 15 to 28 inches, restricts root growth and forms a perched seasonal high water table in the subsoil for brief periods from late fall through spring and during other excessive wet periods.

The soils of minor extent include Ashville, Busti, Chautauqua, Darien, Schuyler, Fremont, and Chadakoin soils. The poorly drained Ashville soils are in depressional areas, along drainageways, and on low flats. The somewhat poorly drained Fremont soils and the moderately well drained Schuyler soils are on uplands and have a higher content of clay in the subsoil than the major soils. The somewhat poorly drained Busti soils and the moderately well drained Chautauqua soils are on the lower side slopes. They do not have a fragipan. The somewhat poorly drained Darien soils do not have a fragipan. They are in broad, undulating areas. The well drained Chadakoin soils are on steeper dissected side slopes.

Most of the cleared areas are used for crops grown in support of dairy farming. Providing drainage and controlling erosion are the main management needs if crops are grown. Interceptor drains are needed to divert runoff and subsurface seepage in many areas. The depth to the saturated zone and the slow movement of water in the fragipan are the main limitations affecting community development.

#### 5. Volusia-Mardin

Dominantly gently to strongly sloping, very deep, somewhat poorly drained and moderately well drained, medium textured soils that have a fragipan and a low content of lime; on uplands

This map unit consists of soils that formed in loamy glacial till derived from siltstone, sandstone, and shale. The landscape consists of broad till plain divides and lower side slopes of the upland plateau that is dominantly in the northern and northwestern part of the county. Slopes are dominantly 3 to 15 percent but range from 0 to 25 percent.

This unit makes up about 24 percent of the county and consists of 35 percent Volusia soils, 30 percent Mardin soils, and 35 percent soils of minor extent (fig. 3).

The Volusia soils are somewhat poorly drained and are dominantly medium textured. They are nearly level to strongly sloping. They are mainly on the lower hillsides and concave foot slopes that receive runoff from the higher adjacent soils. Some areas are on the tops of broad, smooth divides where runoff is slow. The rate of water movement is moderate in the surface layer and the upper part of the subsoil, and slow or very slow in the fragipan and substratum. The fragipan, which occurs at a depth of 10 to 22 inches, restricts root growth and forms a perched seasonal high water table in the upper part of the subsoil from late fall through spring and during other excessively wet periods.

The Mardin soils are moderately well drained and are dominantly medium textured. They are gently sloping to moderately steep. They are in slightly concave areas on hilltops, knolls, ridges, and hillsides. The rate of water movement is moderate in the surface layer and upper part of the subsoil, and slow or very slow in the fragipan and substratum. The dense fragipan, which occurs at a depth of 14 to 26 inches, restricts root growth and forms a perched seasonal high water table for brief periods from late fall through spring and during other excessively wet periods.

The soils of minor extent include Ashville, Fremont, Busti, Canaseraga and Valois soils. The poorly drained Ashville soils are on concave toe slopes, in seepage areas, and in depressional areas. The somewhat poorly drained Fremont soils are on



Figure 3.—A typical area of the Volusia-Mardin general soil map unit. Mardin soils are on the steeper side slopes in the background, and Volusia soils are in the foreground.

summits of plateaus. Fremont soils do not have a fragipan. The somewhat poorly drained Busti soils are along the lower toeslopes. Busti soils do not have a fragipan. The moderately well drained Canaseraga soils are on broad flats and knolls. They have a distinct silt cap overlying a dense fragipan. The well drained Valois soils are on some ridges and knolls on the lower valley sides. Cleared areas of this unit are used for crops grown in support of dairy farming. Many areas that were cleared for farming are now idle or are reverting to woodland. Controlling erosion and providing drainage are the main management needs if crops are grown. Interceptor drains are needed to divert runoff and subsurface seepage in many areas. The depth to the saturated zone and the slow or very slow movement of water in the fragipan are the main limitations affecting community development.

## Areas Dominated by Moderately Deep Soils and Very Deep Soils that Have a Fragipan and that Formed in Glacial Till

These soils make up 17 percent of the county. They are on upland and valley sides. They are dominantly moderately deep and very deep, moderately well drained and somewhat poorly drained, and nearly level to very steep.

#### 6. Ischua-Yorkshire-Napoli

Dominantly gently sloping to steep, moderately deep and very deep, moderately well drained and somewhat poorly drained, medium textured soils that have a fragipan and a low content of lime; on uplands at elevations above 1,800 feet

This map unit consists of soils that formed in loamy glacial till derived from siltstone, sandstone, and shale. The landscape is dominantly broad summits and

saddles and dissected side slopes on plateaus at elevations above 1,800 feet. The unit is dominantly in the central and eastern part of the county. Slopes are dominantly 3 to 35 percent but range from 0 to 50 percent.

This unit makes up about 16 percent of the county and consists of 40 percent Ischua soils, 20 percent Yorkshire soils, 20 percent Napoli soils, and 20 percent soils of minor extent.

The Ischua soils are moderately deep, moderately well drained and are dominantly medium textured. They are gently sloping to very steep. They are on convex hilltops and side slopes in areas where the topography is influenced by the underlying bedrock. The rate of water movement is moderate in the surface and upper subsoil, and moderately slow or slow in the lower subsoil. A seasonal high water table is in the lower part of the subsoil from late fall through spring and during other excessively wet periods.

The Yorkshire soils are very deep, moderately well drained and are dominantly medium textured. They are gently sloping to moderately steep. They are in slightly convex areas on hilltops, knolls, ridges, and hillsides. The rate of water movement is moderate in the surface layer and subsoil above the fragipan, and slow in the fragipan and substratum. The dense fragipan, which occurs at a depth of 16 to 30 inches, restricts root growth and forms a perched seasonal high water table for brief periods from late fall through spring and during other excessively wet periods.

The Napoli soils are very deep, somewhat poorly drained and are dominantly medium to moderately fine textured. They are nearly level to moderately steep. They are mainly on the lower hillsides and concave foot slopes that receive runoff from the higher adjacent soils. Some areas are on the tops of broad, smooth divides where runoff is slow. The rate of water movement is moderate to moderately slow in the surface layer and upper part of the subsoil, and slow or moderately slow in the fragipan and substratum. The fragipan, which occurs at a depth of 12 to 27 inches, restricts root growth and forms a perched seasonal high water table in the upper part of the subsoil from late fall through spring and during other excessively wet periods.

The soils of minor extent include Almond, Salamanca, Willdin and Mandy soils. The somewhat poorly drained Almond soils are on summits of plateaus. They do not have a fragipan. The moderately well drained Salamanca soils are on broad side slopes and knolls. They also do not have a fragipan. The moderately well drained Willdin soils are on broad summits and contain less clay in the subsoil. Mandy soils have less clay in the subsoil, and occur on higher unglaciated hilltops where the bedrock is 20 to 40 inches below the surface.

Cleared areas to this unit are used for crops grown in support of dairy farming. The use of short-season or early maturing crop varieties is recommended. Many areas at the higher elevations were originally cleared and farmed. These areas have been reforested or are naturally reverting to woodland. Controlling erosion and providing drainage are the main management needs if crops are grown. Interceptor drains are needed to divert runoff and subsurface seepage in many areas. The depth to the saturated zone and the slow movement of water in the fragipan are the main limitations affecting community development.

## 7. Hornell-Orpark

Dominantly gently to strongly sloping, moderately deep, somewhat poorly drained, moderately fine textured soils that have a low content of lime; on uplands

This map unit consists of soils that formed in acid glacial till derived from siltstone and shale. These soils are on crests and side slopes on uplands and along escarpments in the northwestern part of the county. This unit is of minor extent in Cattaraugus County. Slopes are dominantly 3 to 15 percent but range from 0 to 25 percent.

This unit makes up about 1 percent of the county and consists of 40 percent Hornell soils, 30 percent Orpark soils, 30 percent soils of minor extent.

The Hornell soils formed in moderately deep glacial till that has a high content of clay. These soils are 20 to 40 inches deep over bedrock and are nearly level to moderately steep. They are in convex areas on hilltops and summits and on valley sides. The rate of water movement is moderate in the surface layer, and slow or very slow in the subsoil and substratum. A seasonal high water table is in the upper part of the subsoil from late fall through spring.

The Orpark soils are 20 to 40 inches deep over bedrock. These soils formed in moderately deep glacial till. They are nearly level to strongly sloping and are on hilltops, summits, and hillsides. The rate of water movement is moderate in the surface layer, and slow or moderately slow in the subsoil and substratum. A seasonal high water table is in the upper part of the subsoil from fall through spring.

The soils of minor extent include Barcelona, Fremont, Ashville, and Busti soils. The poorly drained Ashville soils are on low flats and along drainageways. The somewhat poorly drained Busti soils are very deep over bedrock and have less clay in the subsoil than the major soils of this map unit. Fremont soils are very deep over bedrock. Barcelona soils are 40 to 60 inches deep over bedrock, and contain less clay in the subsoil than the Hornell soils.

Some areas of this unit are farmed, but extensive areas are idle or are reverting to woodland. Most cleared areas are used for hay or pasture, but some are used for orchards or vineyards. Gullies and stream entrenchments are common along the side slopes of the escarpment. Providing drainage and controlling erosion are the main management needs if crops are grown. The soils dry out slowly in spring, and they are sticky when wet. The depth to the saturated zone, the slope, depth to bedrock, and the restricted movement of water in the subsoil are the main limitations affecting community development.

## Areas Dominated by Very Deep Soils Formed in Glacial Lake Sediments

These soils make up about 6 percent of the county. They formed in clayey, silty, and sandy lake-laid deposits that generally have no rock fragments. They are mainly in the plains and valleys that dissect the upland plateau in the northern part of the county and in the major valleys in the western part of the county. In most areas the soils are nearly level and gently sloping and are somewhat poorly drained to very poorly drained. In a few areas where the glacial lake deposits have been dissected, the soils range to moderately steep and moderately well drained.

#### 8. Rhinebeck-Hudson-Niagara

Dominantly gently sloping to moderately steep, very deep, somewhat poorly drained to moderately well drained, fine to medium textured soils that have a medium content of lime; on broad plains and dissected upland plateau.

This map unit consists of soils that formed in glacial lake-laid deposits. The landscape is that of broad plains and strongly dissected valleys sides. The unit is in the central and northern parts of the county. Slopes are dominantly 3 to 25 percent but range from 0 to 50 percent.

This unit makes up about 4 percent of the county and consists of 30 percent Rhinebeck soils, 15 percent Hudson soils, 15 percent Niagara soils, and 40 percent soils of minor extent.

The Rhinebeck soils formed in very deep, lake-laid deposits that are dominantly clay and silts. They are fine textured, somewhat poorly drained, and nearly level to strongly sloping. They are on broad flats on valley plains. They generally do not contain rock fragments. The rate of water movement is moderately slow or moderate

in the surface layer, and slow in the subsoil and substratum. A seasonal high water table is in the upper part of the subsoil from fall through spring.

The Hudson soils formed in very deep, lake-laid deposits that are dominantly clay and silts. They are fine textured, moderately well drained, and strongly sloping to very steep. They are on dissected valley sides. They generally do not contain rock fragments. The rate of water movement is moderate or moderately slow in the surface layer and subsurface layer, and slow in the subsoil and substratum. A seasonal high water table is in the lower part of the subsoil from fall through spring.

The Niagara soils formed in very deep lake-laid deposits that are dominantly silt and some clay. They are medium and moderately fine textured, somewhat poorly drained, and nearly level and gently sloping. They are on broad flats on undulating areas on the lake plains. They generally do not contain rock fragments. The rate of water movement is moderate in the surface layer, moderately slow in the subsoil, and moderately slow or slow in the substratum. A seasonal high water table is in the upper part of the subsoil from fall through spring.

The soils of minor extent include Canandaigua, Canadice, Chenango, Collamer, Dunkirk, and Varysburg soils. The poorly drained Canandaigua and Canadice soils are silty or clayey soils along drainageways or depressional areas. The well drained Chenango soils contain stratified rock fragments and occur on higher terraces. The moderately well drained Collamer soils are silty soils on higher knolls. The well drained Dunkirk soils are silty soils on steeper dissected side slopes. The Varysburg soils are moderately well drained gravelly soils underlain with lacustrine clays and silts.

Less sloping areas of this unit have been cleared and are used for farming. The remaining areas are woodland or are idle land that supports brush. The soils in these areas are mainly those that are poorly drained and too steep to support farming. Many areas are still used for crops grown in support of dairy farming. Tilling only when the soil is at the proper moisture content, minimizes the surface crusting and clodding. The depth to the saturated zone is the main limitation affecting most uses. Excavations and cuts that extend into the substratum are subject to slumping, sloughing, or piping. Many areas of this unit should remain wooded and be developed for wildlife habitat.

#### 9. Canandaigua-Swormville-Tonawanda

Dominantly nearly level, very deep, very poorly drained to somewhat poorly drained, medium textured soils that have a medium content of lime; on broad flats in valleys.

This map unit consists of soils that formed in glacial lake-laid deposits and in older alluvial deposits. The landscape is that of broad lowland valley floors traversed by sluggish, meandering streams. The unit is in the major valleys in the western part of the county. Slopes are dominantly 0 to 3 percent but range from 0 to 8 percent.

This unit makes up about 2 percent of the county and consists of 30 percent Canandaigua soils, 25 percent Swormville soils, 20 percent Tonawanda soils, and 25 percent soils of minor extent.

The Canandaigua soils formed in very deep lake-laid deposits that are dominantly silt. They are medium textured and moderately fine textured, poorly drained and very poorly drained, and nearly level. They have a surface layer that is enriched with humus. They are in the lower depressional areas on valley floors, commonly in slackwater areas. They do not contain rock fragments. The rate of water movement is moderate in the surface layer and moderately slow in the subsoil and substratum. An apparent seasonal high water table is at or near the surface for prolonged periods from fall through spring, and some areas are ponded during these periods.

The Swormville soils formed in a thin mantle of silty material over lake-laid sandy sediment. They are very deep, somewhat poorly drained and are nearly level. They commonly are on broad flats on valley floors. The rate of water movement is moderately slow in the surface layer, slow or moderately slow in the subsoil, and

moderately rapid in the sandy substratum. A seasonal high water table is in the upper part of the subsoil from fall to late in the spring.

The Tonawanda soils formed in very deep lake-laid deposits that are dominantly silt and very fine sand. They are medium textured, somewhat poorly drained, and are nearly level and gently sloping. They are on broad flats on valley floors. They generally do not contain rock fragments. The rate of water movement is moderate or moderately slow in the surface layer and subsoil and slow or moderately slow in the substratum. A seasonal high water table is in the upper part of the subsoil from fall through spring.

The soils of minor extent include Getzville, Lamson, Halsey, Red Hook, Canadice, Wayland, and Minoa soil. The poorly drained Getzville soils have a mantle of silty material underlain by sandy sediment. The somewhat poorly drained Minoa soils, and poorly drained Lamson soils are sandy throughout the profile, the somewhat poorly drained Red Hook soils, and the very poorly drained Halsey soils formed in outwash. The poorly drained Canadice soils have a higher content of clay in the subsoil and substratum than the major soils. The poorly drained Wayland soils formed in recent alluvium.

Most areas of this unit have been cleared and are used for farming. The wettest areas of this unit are woodland or are idle land that supports brush. Many areas are still used for crops grown in support of dairy farming. If properly drained, most areas of this unit are easy to cultivate and respond well to good management. The depth to the saturated zone is the main limitation affecting most uses. Excavations and cuts that extend into the substratum are subject to slumping, sloughing, or piping. Many areas of this unit should remain wooded and are best suited for wildlife habitat.

#### Areas Dominated by Very Deep Soils Formed in Glacial Till and Glacial Outwash

These soils make up 10 percent of the county. They formed in morainic glacial till and gravelly outwash. They are well drained and moderately well drained. They are on valley terraces, outwash fans, and outwash plains throughout the county. The soils generally are nearly level to rolling, except along terrace fronts and in dissected hilly areas, where they range to very steep.

#### 10. Valois-Chenango-Castile

Dominantly gently to strongly sloping, very deep, well drained to moderately well drained, medium and moderately coarse textured soils that have a low content of lime; on moraines and outwash plains in valleys

This map unit consists of soils that formed in morainic glacial till and gravelly outwash. The landscape is made up of rolling plains and a series of low hills, benches, stream terraces, and alluvial fans that are mainly on the lower valley sides. The unit is in the major valleys throughout the county. Slopes are dominantly 3 to 15 percent but range from 0 to 50 percent.

This unit makes up about 10 percent of the county and consists of 30 percent Valois soils, 25 percent Chenango soils, 10 percent Castile soils, and 35 percent soils of minor extent.

The Valois soils formed in a very deep glacial till that is derived from sandstone, siltstone, and shale and commonly is intricately intermingled with or underlain by glacial outwash. These soils are medium and moderately coarse textured, well drained and gently sloping to very steep. They are on low knolls, ridges, and hills on lower valley sides and valley floors. The rate of water movement is moderate in the surface layer and subsoil and moderate or moderately rapid in the substratum. The seasonal high water table is at a depth of more than 6 feet.

The Chenango soils formed in glacial outwash that has a high content of sand and gravel. They are well drained and have a medium or moderately coarse textured

subsoil. The substratum is coarse textured and commonly is stratified. These soils are nearly level to sloping in areas where they occur on beach ridges, outwash plains, terrace tops, and alluvial fans on valley floors, and they are moderately steep to very steep in areas where they occur on the sides of terraces. The rate of water movement is moderate or moderately rapid in the surface layer and subsoil, and rapid in the substratum. The water table usually is at a depth of more than 6 feet.

The Castile soils formed in glacial outwash consisting dominantly of sandstone and siltstone fragments. They are moderately well drained, have a medium textured subsoil and a coarse textured substratum, and are nearly level to gently sloping. They are on broad terraces on valley floors and commonly are slightly lower on the landscape than the adjacent better-drained Chenango soils. The rate of water movement is moderate and moderately rapid in the surface layer, moderately rapid in the subsoil, and rapid in the substratum. A seasonal high water table is in the lower part of the subsoil from fall through spring.

The soils of minor extent include Red Hook, Halsey, Tioga, Middlebury, Scio, Unadilla, Olean, and Allard soils. The somewhat poorly drained Red Hook soils and the very poorly drained Halsey soils formed in similar outwash deposits and are on lower flats on valley floors. The well drained Tioga soils and the moderately well drained Middlebury soils are on alluvial flood plains adjacent to the major streams. The moderately well drained Scio soils have silty material throughout. The well drained Unadilla and Allard soils and moderately well drained Olean soils have a mantle of silty material.

Most areas of this unit have been cleared and are used for farming. The less sloping areas of the major soils are excellent sites for farming. These areas readily dry out early in spring and are easy to cultivate. Specialty crops, such as snap beans and strawberries, are produced along with corn, small grain, and alfalfa grown in support of dairy farming. Droughtiness is a management concern in some years, particularly in areas of gravelly Chenango soils. Generally, the better-drained outwash soils provide good sites for most uses and are suitable sources of sand and gravel. The slope, the depth to the saturated zone, and the high content of gravel are the main limitations affecting most uses.

## Areas Dominated by Very Deep Soils Formed in Glacial Outwash and Recent Alluvium

These soils make up 4 percent of the county. They formed in glacial outwash and recent alluvium. They are mainly in the major valleys that dissect the upland plateau in the central and southern parts of the county. In most areas the soils are nearly level and gently sloping. They are well drained to somewhat poorly drained.

#### 11. Chenango-Pawling-Holderton

Dominantly nearly level and gently sloping, very deep, well drained to somewhat poorly drained soils, on glacial outwash fans and flood plains, in valleys.

This map unit consists of soils that formed in glacial outwash and recent alluvium. The landscape consists of broad flats in the major valleys in the central and southern parts of the county. Slopes are dominantly 0 to 3 percent but range from 0 to 8 percent

This unit makes up about 4 percent of the county and consists of 20 percent Chenango fan soils, 20 percent Pawling soils, 15 percent Holderton soils, and 45 percent soils of minor extent.

The Chenango fan soils are well drained, and have a medium and moderately coarse textured subsoil. The substratum is coarse textured and commonly is stratified. These soils are nearly level and gently sloping. They are on fans that formed in places where tributary streams enter the main valley. The rate of water movement is

moderate or moderately rapid in the surface layer and subsoil and rapid in the substratum. The water table usually is at a depth of 3 to 6 feet from late fall through spring.

The Pawling soils are nearly level and moderately well drained. They formed in loamy alluvial deposits. They have a medium textured surface and subsoil, and a coarse textured substratum. They are on flood plains that are occasionally flooded by adjacent streams. The rate of water movement is moderate in the surface layer and subsoil, and moderately rapid to rapid in the substratum. A seasonal high water table is in the lower part of the subsoil from late fall through spring.

The Holderton soils are somewhat poorly drained and are nearly level. They formed in loamy alluvial deposits in major valleys. They have a medium and moderately coarse textured subsoil and substratum. They are occasionally flooded by adjacent streams. The rate of water movement is moderate in the surface layer and subsoil, and moderate or moderately rapid in the substratum. A seasonal high water table is in the upper part of the subsoil from fall to late spring.

The soils of minor extent include Minoa, Lamson, Red Hook, Halsey, Middlebury, Scio, Olean, Canandaigua, and Wayland soils. The somewhat poorly drained Minoa soils and the poorly drained Lamson soils are sandy throughout. The somewhat poorly drained Red Hook soils and the very poorly drained Halsey soils have gravel throughout. The Middlebury soils are on the flood plains in the larger valleys where the loamy alluvium is deeper than 40 inches. The moderately well drained Scio soils are silty throughout. Olean soils are moderately well drained soils with a silt cap underlain with gravel. The very poorly drained Canandaigua soils are in the lower slack-water areas and are silty throughout. The Wayland soils are poorly drained alluvial soils.

Most areas of this unit have been cleared and are farmed. The better drained Chenango and Pawling soils are used for corn, small grain, or alfalfa grown in support of dairy farming. Flat, channery fragments in the surface layer of the Chenango soils can limit the planting and cultivation of some crops. The wetter Wayland soils are sometimes used for hay or pasture. Some areas of the poorly drained soils remain wooded or are idle land that supports brush. Many areas on the alluvial fans, above the flood plain, provide good homesites. The depth to the saturated zone, the flooding potential, and rock fragments on the surface of the Chenango soils, are the main limitations affecting most uses.

## Areas Dominated by Very Deep Soils and Moderately Deep Soils that Formed in Residual and Colluvial Material

These soils make up about 24 percent of the county. They formed in residual and colluvial material that are very deep to bedrock and residual material that is less than 40 inches deep over siltstone, sandstone and shale bedrock. They are in the southern part of the county. The soils are dominantly well drained to somewhat poorly drained.

#### 12. Buchanan-Rayne-Portville

Dominantly gently sloping to moderately steep, very deep, well drained to somewhat poorly drained, moderately fine and medium textured soils that have a low content of lime; on uplands

This map unit consists of soils that formed in colluvial and residual material derived dominantly from acid shale, siltstone, and sandstone. The landscape consists of broad, divided hilltops, hillsides, saddles, and side slopes in the upland plateau in the southern part of the county. Slopes are dominantly 3 to 25 percent but range from 3 to 50 percent.

This unit makes up about 9 percent of the county and consists of about 30 percent Buchanan soils, 25 percent Rayne soils, 25 percent Portville soils, and 20 percent soils of minor extent.

The Buchanan soils formed in colluvium weathered from interbedded shale, siltstone, and sandstone. These soils are moderately well drained and are very deep over bedrock. They are gently sloping to moderately steep on broad hillsides and benches of the unglaciated plateau. The rate of water movement is moderate above the fragipan and slow in the fragipan and substratum. The fragipan is at a depth of 20 to 36 inches. A perched seasonal high water table is in the subsoil from late fall through spring.

The Rayne series consists of very deep, well drained, moderately steep to very steep soils that formed in residuum weathered from interbedded shale, siltstone, and some fine grained sandstone. They are on upland ridgetops and hillsides of the unglaciated plateau. The subsoil and substratum are medium to moderately fine textured. The rate of water movement is moderate in the surface layer, subsoil and substratum. A seasonal high water table is at a depth of more than 6 feet.

The Portville series consists of very deep, somewhat poorly drained, gently to strongly sloping soils on toeslopes, lower colluvial side slopes, and benches of the unglaciated plateau. These soils formed in colluvium derived from interbedded shale, siltstone, and fine-grained sandstone. The rate of water movement is moderate or moderately slow above the fragipan and moderately slow to slow in the fragipan and substratum. The fragipan is at a depth of 12 to 36 inches. A perched seasonal high water table is in the upper part of the subsoil from late fall through spring.

The soils of minor extent include Gilpin, Brinkerton, Cavode, Eldred, and Hartleton soils. The well drained Gilpin soils are 20 to 40 inches deep to bedrock. The poorly drained Brinkerton soils occupy concave basins and lower colluvial toeslopes. The moderately well drained Eldred soils are very deep and have a moderately fine textured subsoil. The somewhat poorly drained Cavode soils are very deep, and have a moderately fine or fine textured subsoil and substratum. The well drained Hartleton soils are deep to bedrock.

Most areas of this unit are wooded. Some areas of this unit, particularly the gently sloping areas on hilltops, have been cleared and are used for farming. Crops commonly grown include corn, hay, and small grain. Some areas are used for Christmas trees. Providing proper drainage and controlling erosion are the main management needs. The depth to the saturated zone, the slope, the depth to bedrock, and the restricted movement of water in the subsoil are the main limitations affecting community development.

#### 13. Carrollton-Kinzua-Onoville

Dominantly gently sloping to moderately steep, moderately deep and very deep, well drained to moderately well drained, moderately fine and medium textured soils that have a low content of lime; on uplands above elevations of 1,800 feet

This map unit consists of soils that formed in residual and colluvial material derived dominantly from acid shale, siltstone, and sandstone. The landscape is dominantly broad summits, saddles and dissected side slopes on plateaus at elevations above 1,800 feet in the southern part of the county. Slopes are dominantly 3 to 25 percent but range from 3 to 60 percent.

This unit makes up about 15 percent of the county and consists of 30 percent Carrollton soils, 25 percent Kinzua soils, 20 percent Onoville soils, and 25 percent soils of minor extent.

The Carrollton soils formed in residuum weathered from interbedded shale, siltstone, and sandstone. They are well drained and are 20 to 40 inches deep over bedrock. They are gently sloping to very steep and are on broad hilltops and valley sides at elevations above 1,800 feet. The subsoil and substratum are medium to moderately fine textured. The rate of water movement is moderate in the surface layer, subsoil and substratum. A seasonal high water table is at a depth of more than 6 feet.

The Kinzua series consists of very deep, well drained, gently sloping to very steep soils that formed in residuum derived from interbedded shale, siltstone, and some fine grained sandstone. They are on upland ridgetops and hillsides of the unglaciated plateau at elevations above 1,800 feet. The subsoil and substratum are medium to moderately fine textured. The rate of water movement is moderate in the surface layer and subsoil, and moderately slow in the substratum. A seasonal high water table is at a depth of more than 6 feet.

The Onoville soils formed in colluvium derived from interbedded shale, siltstone, and sandstone. They are moderately well drained and very deep over bedrock. They are gently sloping to moderately steep on broad hillsides and benches of the unglaciated plateau at elevations above 1,800 feet. The rate of water movement is moderate above the fragipan and slow or moderately slow in the fragipan and substratum. The fragipan is at a depth of 12 to 36 inches. A perched seasonal high water table is in the upper part of the subsoil from late in fall through spring.

The soils of minor extent include Mandy, Shongo, Ivory, Elko, Knapp Creek, Flatiron, and Ceres soils. The well drained Mandy soils are 20 to 40 inches deep to bedrock. The somewhat poorly drained Shongo soils occupy concave basins and lower colluvial toeslopes. The moderately well drained Elko soils are very deep and occupy flat hilltops. The well drained Knapp Creek and Flatiron soils were derived from sandstone conglomerate and have coarser textured subsoil. The somewhat poorly drained Ivory soils are very deep and have a clayey subsoil and substratum. The well drained Ceres soils are deep to bedrock and have redder subsoil.

Most areas of this unit are wooded. Some gently sloping areas on hilltops have been cleared and are used for farming. Crops commonly grown include corn, hay, and small grain. Special varieties of crops must be used because of the shorter growing season. Some areas are used for Christmas trees. Providing proper drainage and controlling erosion are the main management needs. The depth to the saturated zone, the slope, the depth to bedrock, and the restricted movement of water in the subsoil are the main limitations affecting community development.

## **Detailed Soil Map Units**

The map units delineated on the detailed soil maps in this survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this section, along with the maps, can be used to determine the suitability and potential of a unit for specific uses. They also can be used to plan the management needed for those uses.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. The contrasting components are mentioned in the map unit descriptions. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives the principal hazards and limitations to be considered in planning for specific uses.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the

detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Chenango gravelly silt loam, 3 to 8 percent slopes is a phase of the Chenango series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes or undifferentiated groups.

A *soil complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Udifluvents and Fluvaquents, frequently flooded, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually, but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Hornell and Hudson soils, 35 to 50 percent slopes, is an undifferentiated group in this survey area.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Pits, gravel, is an example. Miscellaneous areas are shown on the soil maps. Some that are too small to be shown are identified by a special symbol on the soil maps.

The detailed soil maps of Cattaraugus County join with those of the adjacent counties, which are identified in the following paragraphs.

Allegany County, New York.—This county does not have a modern published soil survey. A survey is currently in progress and will be a perfect join.

Chautauqua County, New York.—This is a perfect join with the exception of one unit, Pompton (Chautauqua County) matches with Castile (Cattaraugus County). The soils are very similar in properties. Chautauqua County is published at a scale of 1:15,840 and digitized at a scale of 1:12,000; Cattaraugus County is mapped at a scale of 1:24,000 and digitized at a scale of 1:24,000.

Erie County, New York.—This county is separated by a double line stream, therefore is a perfect join. Erie County is published at a scale of 1:15,840 and digitized at a scale of 1:12,000; Cattaraugus County is mapped at a scale of 1:24,000 and digitized at a scale of 1:24,000.

McKean County, Pennsylvania.—The same or similar soils match across the survey boundaries. Minor discrepancies are the result of differences in the design of the legends, changes in the concept of the series, and differences in map scales (McKean County was published at a scale of 1:20,000, whereas Cattaraugus County was mapped at a scale of 1:24,000). In all cases the kind of deposits, drainage, and slope join across the survey boundaries. The difference in temperature regimes will be resolved when McKean County is digitized and correlates frigid soils. The Cattaraugus County Soil Survey will be accepted as correct on its borders with this county.

Seneca Nation of Indians, New York.—This is an acceptable join with the same or similar soils matching across the survey boundaries. The difference in temperature regimes with the Allegany Reservation will be resolved when it is correlated with frigid soils.

Warren County, Pennsylvania.—The same or similar soils match across the survey boundaries. Minor discrepancies are the result of differences in the design of the legends, changes in the concept of the series, and differences in map scales (Warren County was published at a scale of 1:20,000, whereas Cattaraugus County was mapped at a scale of 1:24,000). In all cases the kind of deposits, drainage, and slope join across the survey boundaries. The difference in temperature regimes will be resolved when Warren County is digitized and correlates frigid soils. The Cattaraugus County Soil Survey will be accepted as correct on its borders with this county.

Wyoming County, New York.—This is an acceptable join with the same or similar soils match across the survey boundaries. The difference in temperature regimes will be resolved when Wyoming County is digitized and correlated with frigid soils. Wyoming County Soil Survey is published at a scale of 1:20,000, whereas Cattaraugus County was mapped at a scale of 1:24,000.

Table 4 gives the acreage and proportionate extent of each map unit. Other tables give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils or miscellaneous areas.

## **Map Unit Descriptions**

## 1—Udifluvents and Fluvaquents, frequently flooded

These nearly level, very deep soils consist of unconsolidated alluvium deposited in long, narrow strips along secondary streams. The soils are subject to frequent flooding from nearby streams. Individual areas are mostly elongated, and parallel the nearby streams and creeks. These areas commonly range from 10 to 20 acres, but range from 10 to 75 acres. Included areas make up about 15 to 35 percent of this unit.

This complex is about 40 percent Udifluvents, 35 percent Fluvaquents, and 25 percent other soils. The Udifluvents and Fluvaquents occur in such an intricate pattern that they were not separated in mapping. These soils show very little evidence of profile development. The soil characteristics vary considerably within short distances. Included in mapping are small areas of the poorly drained Wayland and Wyalusing soils in old meander scars and former drainageways; small areas of poorly drained silty Canandaigua soil; and small areas of somewhat poorly drained Holderton soil.

Udifluvents have a brown surface layer about 0 to 9 inches thick. The texture is sandy, silty or loamy. The substratum is brown or gray and is composed of sandy, silty, or loamy texture. The content of rock fragments consisting mainly of gravel, cobblestones, and flagstones, ranges, by volume, from 0 to 70 percent in individual horizons.

Fluvaquents have a black, gray or brown surface layer, 0 to 12 inches thick, which is loamy or silty in texture. The substratum is gray or brown material that is silty, sandy, or loamy in texture. The content of rock fragments consisting mainly of gravel, cobblestones, and flagstones, ranges, by volume, from 0 to 70 percent in individual horizons.

The Udifluvents and Fluvaquents are subject to frequent overflow from the adjacent streams, stream cutting, and erosion, all of which shift the deposits from one place to another. Udifluvents are generally moderately well drained, and Fluvaquents are generally poorly drained. Permeability, available water capacity, small stone content, and reaction vary considerably.

Most areas support native grasses or support water-tolerant trees such as willow, soft maple, and hemlock. Some areas consist of gravelly riverwash that does not support vegetation.

These soils have little potential for farming. Some cleared areas are used as pasture but are slowly reverting to brush and weeds. Areas that are suitable for pasture cannot be easily managed because they are commonly inaccessible, are long and narrow, and are dissected by old stream channels.

The capability subclass is 5w.

#### 2—Hamlin silt loam

This soil is nearly level, very deep to bedrock and well drained. It is on the higher parts of flood plains along the major streams in the northern part of the county. Individual areas generally are oblong in shape and are parallel to the adjacent streams and creeks. Areas range from 5 to 30 acres in size. Slopes commonly are smooth and range from 0 to 3 percent.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 10 inches; dark grayish brown silt loam

Subsoil:

10 to 17 inches; brown very friable very fine sandy loam

17 to 36 inches: brown friable silt loam

Substratum:

36 to 48 inches; dark grayish brown very friable very fine sandy loam

48 to 72 inches; dark grayish brown friable silt loam

Included in mapping are small areas of the moderately well drained Teel soils in slight depressions and old drainageways and small areas of Tioga soils, which have more sand and gravel than the Hamlin soil. Also included are small areas of the poorly drained Wayland soils in old meander scars and former drainageways and small areas of Udifluvents and Fluvaquents, which consist of unconsolidated alluvial deposits. Included areas make up 10 to 20 percent of this unit.

#### Soil properties—

Permeability: Moderate throughout the profile

Available water capacity: High

Soil reaction: Reaction ranges from strongly acid to neutral to a depth of 20 inches and moderately acid to

slightly alkaline below that depth through May

Flooding hazard: Occasional, brief Depth to bedrock: More than 6 feet

Most areas are used for cultivated crops. Some of the acreage is idle land or woodland, which is generally in isolated areas that cannot be easily farmed. This soil meets the requirements for prime farmland.

This soil is well suited to cultivated crops. Flooding is a hazard, but it generally occurs early in spring, before crops are planted. Deep-rooted perennial crops, such as alfalfa, grow especially well. The soil has a stone-free surface layer and can be easily tilled. If the wet included areas are drained, the fields can be managed more uniformly. Row crops can be grown repeatedly if tilth and the content of organic matter are maintained by such measures as growing cover crops, incorporating crop residue into the soil, growing occasional sod crops, and minimizing tillage. Measures that protect streambanks and improve channels are needed in places to protect the soil from flooding.

Hay and pasture plants grow well on this soil. Overgrazing can damage pasture plants and restrict plant growth. Using proper stocking rates, rotating livestock grazing, controlling weeds and brush, and deferring livestock grazing in the spring are the main management concerns.

The potential productivity of this soil for sugar maple is moderately high. The hazard of off-road or off-trail erosion and hazard of erosion on roads and trails is slight. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival.

Flooding is the main hazard on sites for dwellings with basements. Fill material is needed to elevate the construction sites above the water level during periods of flooding. Alternative sites, out of the active flood plain, should be considered for construction.

Flooding and frost action are the main management concerns if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material reduces the potential for frost action. The roads and streets should be built on raised fill material so that they are above the level of flooding.

Flooding and depth to saturated zone are management concerns if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed.

The soil is a potential source of topsoil.

The capability class is 1.

## 3—Tioga silt loam

This soil is nearly level, very deep and well drained. It is in the higher positions on the flood plains along the major streams in the southern part of the county. Individual areas commonly are oblong and are parallel to the adjacent streams. They range from 5 to 50 acres. Slopes commonly are smooth and range from 0 to 3 percent.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 8 inches; dark grayish brown silt loam

Subsoil:

8 to 16 inches; brown very friable silt loam

16 to 34 inches; brown very friable very fine sandy loam

Substratum:

34 to 42 inches; yellowish brown very friable very fine sandy loam, with 5 percent gravel

42 to 72 inches; yellowish brown loose fine sandy loam, with 10 percent gravel

Included in mapping are small areas of the moderately well drained Middlebury and somewhat poorly drained Holderton soils in slight depressions and old drainageways and small areas of Hamlin soils that have more silt in the subsoil than the Tioga soil. Also included are small areas of Udifluvents and Fluvaquents, which consist of unconsolidated alluvial deposits, and small areas of soils that have a gravelly surface layer. Included areas make up about 10 to 20 percent of the unit.

#### Soil properties—

Permeability: Moderate or moderately rapid in the surface layer and subsoil, moderate to rapid in the substratum

Available water capacity: Low to high

Soil reaction: Strongly acid to neutral in the surface layer and subsoil, and moderately acid to slightly alkaline in the substratum

Water table: At a depth of 3 to 6 feet from November through May

Flooding hazard: Occasional, brief Depth to bedrock: More than 6 feet

Most areas are used for cultivated crops grown in support of dairy farming. Some of the acreage, in scattered areas that cannot be easily farmed, is idle land or woodland. This soil meets the requirements for prime farmland.

This soil is well suited to cultivated crops. Flooding is a hazard, but it generally occurs early in spring, before crops are planted. Deep-rooted perennial crops, such

as alfalfa, grow especially well. The soil has a stone free surface layer and can be easily tilled. If the wet included areas are drained, the fields can be managed more uniformly. Row crops can be grown repeatedly if tilth and the content of organic matter are maintained by such measures as incorporating crop residue into the soil, growing cover crops and occasional sod crops, and minimizing tillage. Measures that protect streambanks and improve channels are needed in places to protect the soil from flooding.

Hay and pasture plants grow well on this soil. Overgrazing can damage pasture plants and restrict plant growth. Using proper stocking rates, rotating livestock grazing, controlling weeds and brush, and deferring grazing early in spring are the main management concerns.

The potential productivity of this soil for sugar maple is moderately high. The hazard of off-road or off-trail erosion and the hazard of erosion on roads and trails is slight. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival.

Flooding is the main management concern if this soil is used as a site for dwellings with basements. Fill material is needed to elevate the dwellings above the high water level during periods of flooding. Alternative sites, out of the active flood plain, should be considered for construction.

Flooding and frost action are the main management concerns if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material reduces the potential for frost action. Building on raised fill material reduces the hazard of flooding.

Flooding, poor filtering capacity, and depth to saturated zone are management concerns if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Care is needed to prevent the contamination of ground water resulting from seepage.

This soil is a potential source of topsoil.

The capability class is 1.

#### 4—Teel silt loam

This soil is nearly level, very deep, and moderately well drained. It is in low areas on flood plains along the major streams in the northern part of the county. Individual areas generally are oblong and are parallel to the adjacent streams, and range from 5 to 30 acres in size. Slopes generally are smooth and range from 0 to 3 percent.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 8 inches; dark grayish brown silt loam

Subsoil:

8 to 22 inches; dark yellowish brown friable silt loam

22 to 34 inches; brown friable silt loam, with strong brown iron accumulations and grayish brown iron depletions

Substratum:

34 to 56 inches; brown friable silt loam, with strong brown iron accumulations and grayish brown iron depletions

56 to 72 inches; grayish brown very friable very fine sandy loam

Included in mapping are small areas of the somewhat poorly drained Wakeville soils, poorly drained Wayland soils in slight depressions and old meander scars, and small areas of the well drained Hamlin soils in the slightly higher positions on the landscape. Also included are areas of Udifluvents and Fluvaquents which consist of

unconsolidated alluvial deposits. Included areas make up about 10 to 20 percent of the unit.

#### Soil properties—

Permeability: Moderate to a depth of 40 inches, moderate to rapid below this depth Available water capacity: High

Soil reaction: Strongly acid to neutral above a depth of 30 inches; and moderately acid to slightly alkaline below that depth

Water table: At a depth of 1.5 to 2.0 feet from November through May

Flooding hazard: Occasional, brief Depth to bedrock: More than 6 feet

Most areas are used for cultivated crops in support of dairy farming. Some of the acreage is idle land or woodland, which generally is in small areas that are isolated and cannot easily be farmed. This soil meets the requirements for prime farmland.

This soil is well suited to cultivated crops. Flooding may delay planting or damage crops in some years, but it usually is not a concern. The seasonal high water table may delay planting in the spring, especially in low areas. The wetness can be reduced by installing subsurface drains in areas where outlets are available. If the wet included areas are drained, the fields can be managed more uniformly.

This soil has a nearly stone-free surface layer and can be easily tilled. Row crops can be grown repeatedly if tilth and the content of organic matter are maintained by such measures as incorporating crop residue into the soil, growing cover crops and sod crops, and minimizing tillage. Deep-rooted perennial crops, such as alfalfa, grow especially well. Measures that protect streambanks are needed in some areas to prevent lateral erosion into the adjacent fields.

Hay and pasture plants grow well on this soil. Overgrazing and grazing when the soil is wet can cause surface compaction, deplete the stand of pasture plants, and restrict plant growth. Using proper stocking rates, rotating grazing, controlling weeds and brush, and deferring grazing early in spring are the main management concerns.

The potential productivity of this soil for sugar maple is moderately high. The hazard of off-road or off-trail erosion and hazard of erosion on roads and trails is slight. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, ensures their survival.

Flooding and depth to saturated zone are the main management concerns for dwellings with basements. Fill material is needed to elevate the dwellings above the high water level during periods of flooding. Adding fill material, installing drains around footings, and sealing foundations and basement walls help to prevent excessive wetness in basements. Alternative sites, out of the active flood plain, should be considered for construction.

Flooding and frost action are the main management concerns if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material reduces the potential for frost action. Building on raised fill material reduces the hazard of flooding and helps to overcome any wetness.

Flooding, poor filtering capacity, and depth to saturated zone are management concerns if this soil is used as a site for septic tank absorption fields. Care is needed to prevent the contamination of ground water resulting from seepage. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed.

The capability subclass is 2w.

## 5—Wayland silt loam

This soil is nearly level, very deep, and poorly drained. It is in the lowest parts on the flood plains along the major streams in the county. Individual areas generally are

oblong and are parallel to the adjacent streams, and range from 10 to 75 acres in size. Slopes commonly are smooth and ranges from 0 to 3 percent.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 9 inches; very dark gray silt loam with dark brown iron accumulations

Subsoil:

9 to 25 inches; dark gray friable silty clay loam, with dark yellowish brown iron accumulations

Substratum:

25 to 51 inches; dark grayish brown friable silt loam, with dark brown iron accumulations and gray iron depletions

51 to 72 inches; dark gray friable silt loam with 5 percent gravels

Included in mapping are small areas of Wakeville and Holderton soils in the higher positions on the flood plains, soils that have a mucky surface layer, and soils that have sand and gravel within a depth of 36 inches. Also included in broad flats are areas of poorly drained Canandaigua soils that are silty throughout. Included areas make up about 10 to 20 percent of this unit.

#### Soil properties—

Permeability: Moderately slow or moderate in the surface layer and slow in the subsoil and substratum

Available water capacity: High

Soil reaction: Strongly acid to neutral in the surface layer and subsoil, strongly acid to moderately alkaline in the upper part of the substratum, and moderately acid to moderately alkaline in the lower part of the substratum

Water table: At the surface or at a depth of 0.5 feet

from October through June Flooding hazard: Frequent, long Depth to bedrock: More than 6 feet

Most of the acreage is idle land that supports water-tolerant grasses, brush and trees. Some areas are used as pasture. Some drained areas are cultivated. This soil meets the requirements for hydric soils.

This soil is not suited to cultivated crops because of the prolonged wetness and the frequent flooding. Draining the soil commonly is difficult because few suitable outlets are available. Where it can be drained, this gravel-free soil is suited to many crops. Tilth and soil structure deteriorate if the soil is plowed when wet. Growing cover crops, incorporating crop residue into the soil, plowing only when the soil is at the proper moisture content, and rotating crops, help to maintain a high content of organic matter and good tilth. Sod crops and cover crops protect the surface from scouring by floodwater.

Undrained areas of this soil can be used as pasture on a limited basis. The pasture grasses that can withstand wetness grow best. Restricting grazing when the soil is wet helps to prevent surface compaction and damage to the pasture. The pasture should be plowed, a seedbed prepared, and seed planted during dry periods in summer. Using proper stocking rates, rotating livestock grazing, and controlling weeds and brush are other management concerns.

The potential productivity of this soil for red maple is moderate. The hazard of offroad or off-trail erosion and the hazard of erosion on roads and trails is slight. The potential for seedling mortality is high. Prolonged wetness results in a high seedling mortality rate and restricts the growth of roots. The trees that can withstand wetness grow best. Depth to saturated zone and the hazard of flooding are the main management concerns if this soil is used as a site for dwellings with basements. Prolonged soil wetness is a severe limitation for the construction of dwellings with basements. Included areas of the somewhat poorly drained Wakeville soils are better sites for these dwellings. Building on raised fill material helps to overcome the wetness. Alternative sites, out of the active flood plain, should be considered for construction.

Depth to saturated zone, the hazard of flooding, and frost action are the main management concerns if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and building on raised fill material reduce the hazard of flooding, help to overcome the prolonged wetness, and overcome frost action.

Flooding, depth to saturated zone, and the restricted permeability are management concerns if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed.

The capability subclass is 5w.

## 6A—Wyalusing silt loam, 0 to 3 percent slopes

This soil is nearly level, very deep, and poorly drained. It is in the lowest parts on the flood plains along the secondary streams in the county. Individual areas generally are narrow strips along the adjacent streams, and range from 10 to 75 acres in size. Slopes commonly are smooth and range from 0 to 3 percent.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 6 inches; very dark grayish brown silt loam

#### Subsoil:

6 to 18 inches; gray friable silt loam, with brown iron accumulations

18 to 22 inches; dark grayish brown loam, with brown iron accumulations, and 10 percent fine gravel

22 to 27 inches; dark gray friable gravelly fine sandy loam, with brown iron accumulations, and 20 percent gravel

#### Substratum:

27 to 72 inches; dark grayish brown stratified very gravelly loamy sand with 50 percent gravel

Included in mapping are small areas of Wakeville and Holderton soils in the higher positions on the flood plains, soils that have a mucky surface layer, and soils that have sand and gravel within a depth of 36 inches. Also included are areas of Udifluvents and Fluvaquents which consist of unconsolidated alluvial deposits. Included soils make up about 10 to 20 percent of this unit.

#### Soil properties—

Permeability: Moderate in the surface and subsoil and rapid in the substratum

Available water capacity: Moderate to high

Soil reaction: Strongly acid to slightly acid throughout the profile

Water table: At the surface or to a depth of 0.5 feet from November through May

Flooding hazard: Frequent, brief Depth to bedrock: More than 6 feet

Most of the acreage is idle land that supports water-tolerant grasses, brush, and trees. Some areas are used as pasture. This soil meets the requirements for hydric soils.

This soil is not suited to cultivated crops because of the prolonged wetness and the frequent flooding. Draining the soil commonly is difficult because few suitable outlets are available. Tilth and soil structure deteriorate if the soil is plowed when wet. Growing cover crops, incorporating crop residue into the soil, plowing only when the soil is at the proper moisture content, and rotating crops help to maintain a high content of organic matter and good tilth. Sod crops and cover crops protect the surface from scouring by floodwater.

Undrained areas of this soil can be used as pasture on a limited basis. The pasture grasses that can withstand wetness grow best. Restricting grazing when the soil is wet helps to prevent surface compaction and damage to the pasture. The pasture should be plowed, a seedbed prepared, and seed planted during dry periods in summer. Using proper stocking rates, rotating livestock grazing, and controlling weeds and brush are other management concerns.

The potential productivity of this soil for red maple is moderate. The hazard of offroad or off-trail erosion and hazard of erosion on roads and trails is slight. The potential for seedling mortality is high. Prolonged wetness results in a high seedling mortality rate and restricts the growth of roots. The trees that can withstand wetness grow best.

Depth to saturated zone and flooding are the main management concerns if this soil is used as a site for dwellings with basements. Prolonged soil wetness is a severe limitation for the construction of dwellings with basements. Included areas of the somewhat poorly drained Wakeville soils are better sites for these dwellings. Building on raised fill material helps to overcome the wetness and flooding hazard. Alternative sites, out of the active flood plain, should be considered for construction.

The depth to the saturated zone, flooding, and frost action are the main management concerns if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and building on raised fill material reduce the hazard of flooding and help to overcome the wetness and frost action.

Flooding, depth to the saturated zone, and poor filtering capacity are management concerns on sites for septic tank absorption fields. Care is needed to prevent the contamination of ground water resulting from seepage. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed.

The capability subclass is 5w.

## 7A—Philo silt loam, 0 to 3 percent slopes

This soil is nearly level, very deep, and moderately well drained. It is in low areas on flood plains adjacent to the major streams in the southern part of the county. Individual areas generally are oblong and are parallel to the adjacent streams, and range from 5 to 30 acres in size. Slopes commonly are smooth and range from 0 to 3 percent.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 8 inches; dark grayish brown silt loam

Subsoil

8 to 14 inches; dark yellowish brown friable fine sandy loam

14 to 21 inches; yellowish brown friable fine sandy loam

21 to 34 inches; yellowish brown friable loam, with strong brown iron accumulations and grayish brown iron depletions

Substratum

34 to 46 inches; strong brown friable loam with 5 percent gravel

46 to 72 inches; strong brown friable sandy loam with 10 percent gravel

Included in mapping are small areas of the poorly drained Atkins soils and poorly drained Wayland soils in slight depressions and old meander scars and small areas of the well drained Pope soils in the slightly higher positions on the landscape. Also included are small areas of Udifluvents and Fluvaquents, which consist of unconsolidated alluvial deposits, and small areas of soils that have a gravelly surface layer. Included soils make up about 10 to 25 percent of this unit.

#### Soil properties—

*Permeability:* Moderate in the surface layer and subsoil, moderate or moderately rapid in the substratum

Available water capacity: Moderate or high

Soil reaction: Very strongly acid to moderately acid throughout the profile Water table: At a depth of 1.5 to 2.0 feet from November through May

Flooding hazard: Occasional, brief Depth to bedrock: More than 6 feet

Most areas are used for cultivated crops grown in support of dairy farming. Some of the acreage is idle land or woodland, which generally is in isolated areas that cannot be easily farmed. This soil meets the requirements for prime farmland.

This soil is well suited to cultivated crops. Flooding may delay planting or damage crops in some years, but it usually is not a concern. The seasonal high water table may delay planting in the spring, especially in low areas. The wetness can be reduced by installing subsurface drains in areas where outlets are available. If the wet included areas are drained, the fields can be managed more uniformly. This soil has a stone-free surface layer and can be easily tilled. Row crops can be grown repeatedly if tilth and the content of organic matter are maintained by such measures as growing cover crops, incorporating crop residue into the soil, and minimizing tillage. Deep-rooted perennial crops, such as alfalfa, grow especially well. Measures that protect streambanks are needed in some areas to prevent lateral erosion in the fields.

Hay and pasture plants grow well on this soil. Overgrazing and grazing when the soil is wet can cause surface compaction, restrict plant growth, and deplete the stand of pasture plants. Using proper stocking rates, rotating livestock grazing, controlling weeds and brush, and deferring grazing early in spring are the main management concerns.

The potential productivity of this soil for sugar maple is moderately high. The hazard of off-road or off-trail erosion and the hazard of erosion on roads and trails is slight. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival.

Flooding and depth to saturated zone are the main management concerns for dwellings with basements. Fill material is needed to elevate the dwellings above the high water level during periods of flooding. Adding fill material, installing drains around footings, and sealing foundations and basement walls help to prevent excessive wetness in basements. Alternative sites, out of the active flood plain, should be considered for construction.

Flooding, depth to saturated zone, and frost action are the main management concerns on sites for local roads and streets. Adding coarse textured subgrade or base material increases soil strength and reduces the potential for frost action. Building on raised fill material reduces the hazard of flooding and helps to overcome the wetness.

Flooding and depth to saturated zone are management concerns on sites for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed.

The capability subclass is 2w.

### 8—Middlebury silt loam

This soil is nearly level, very deep, and moderately well drained. It is in low areas on flood plains adjacent to the major streams. Individual areas generally are oblong and are parallel to the adjacent streams, and range from 5 to 50 acres in size. Slopes commonly are smooth and range from 0 to 3 percent.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 8 inches; dark grayish brown silt loam, with 5 percent gravel

Subsoil:

8 to 22 inches; brown friable loam

22 to 30 inches; yellowish brown friable silt loam, with strong brown iron accumulations and grayish brown iron depletions

Substratum:

30 to 48 inches; yellowish brown very friable very fine sandy loam, with strong brown iron accumulations

48 to 72 inches; yellowish brown very friable fine sandy loam

Included in mapping are small areas of the somewhat poorly drained Holderton soils in slight depressions and old meander scars, and small areas of the well drained Tioga soils in the slightly higher positions on the landscape. Also included are small areas of Udifluvents and Fluvaquents, which consist of unconsolidated alluvial deposits, and small areas of soils that have a gravelly surface layer. Included soils make up about 10 to 20 percent of this unit.

#### Soil properties—

Permeability: Moderate in the surface layer and subsoil, moderately rapid to rapid in the substratum

Available water capacity: Moderate or high

Soil reaction: Strongly acid to slightly acid in the surface layer and from moderately acid to neutral in the subsoil and substratum

Water table: At a depth of 1.5 to 2.0 feet from November through May

Flooding hazard: Occasional, brief Depth to bedrock: More than 6 feet

Most areas are used for cultivated crops grown in support of dairy farming. Some of the acreage is idle land or woodland, which generally is in isolated areas that cannot be easily farmed. This soil meets the requirements for prime farmland.

This soil is well suited to cultivated crops. Flooding may delay planting or damage crops in some years, but it usually is not a concern. The seasonal high water table may delay planting in the spring, especially in low areas. The wetness can be reduced by installing subsurface drains in areas where outlets are available. If the wet included areas are drained, the fields can be managed more uniformly. This soil has a relatively stone-free surface layer and can be easily tilled. Row crops can be grown repeatedly if tilth and the content of organic matter are maintained by such measures as growing cover crops, incorporating crop residue into the soil, and minimizing tillage. Deep-rooted perennial crops, such as alfalfa, grow especially well. Measures that protect streambanks are needed in some areas to prevent lateral erosion in the fields.

Hay and pasture plants grow well on this soil. Overgrazing and grazing when the soil is wet can cause surface compaction, restrict plant growth, and deplete the stand of pasture plants. Using proper stocking rates, rotating livestock grazing, controlling weeds and brush, and deferring grazing early in spring are the main management concerns.

The potential productivity of this soil for sugar maple is moderately high. The hazard of off-road or off-trail erosion and the hazard of erosion on roads and trails is slight. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival.

Flooding and depth to saturated zone are the main management concerns for dwellings with basements. Fill material is needed to elevate the dwellings above the high water level during periods of flooding. Adding fill material, installing drains around footings, and sealing foundations and basements walls help to prevent excessive wetness in basements. Alternative sites, out of the active flood plain, should be considered for construction.

Flooding, depth to saturated zone, and frost action are the main management concerns if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material increases soil strength and reduces the potential for frost action. Building on raised fill material reduces the hazard of flooding and helps to overcome the wetness.

Flooding, poor filtering capacity, and depth to saturated zone are management concerns on sites used for septic tank absorption fields. Care is needed to prevent the contamination of ground water resulting from seepage. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed.

The capability subclass is 2w.

## 9—Pawling silt loam

This soil is nearly level, very deep, and moderately well drained. It is in low areas on flood plains adjacent to the major streams. Individual areas generally are oblong and are parallel to the adjacent streams, and range from 5 to 30 acres in size. Slopes commonly are smooth and range from 0 to 3 percent.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 9 inches; very dark grayish brown silt loam

Subsoil:

9 to 22 inches; brown very friable silt loam with 2 percent gravel 22 to 28 inches; brown very friable loam, with dark yellowish brown iron accumulations and gray iron depletions, and 5 percent gravel

Substratum:

28 to 39 inches; gray loose gravelly loamy sand, with brown iron accumulations, and 20 percent gravel

39 to 72 inches; dark gray loose very gravelly sand, with 50 percent gravel

Included in mapping are small areas of the somewhat poorly drained Holderton soils in slight depressions and old meander scars and small areas of the well drained Tioga soils in the slightly higher positions on the landscape. Also included are small areas of Udifluvents and Fluvaquents, which consist of unconsolidated alluvial deposits, and small areas of soils that have a gravelly surface layer. Included soils make up about 10 to 20 percent of this unit.

#### Soil properties—

Permeability: Moderate in the surface layer and subsoil, moderately rapid or rapid in the substratum

Available water capacity: Moderate or high

Soil reaction: Strongly acid to moderately acid above 20 inches and moderately acid to neutral in the lower part of the solum and substratum.

Water table: At a depth of 1.5 to 2.0 feet from November through May

Flooding hazard: Occasional, brief Depth to bedrock: More than 6 feet

Most areas are used for cultivated crops grown in support of dairy farming. Some of the acreage is idle land or woodland, which generally is in isolated areas that cannot be easily farmed. This soil meets the requirements for prime farmland.

This soil is well suited to cultivated crops. Flooding may delay planting or damage crops in some years, but it usually is not a concern. The seasonal high water table may delay planting in the spring, especially in low areas. The wetness can be reduced by installing subsurface drains in areas where outlets are available. If the wet included areas are drained, the fields can be managed more uniformly. This soil has a stone-free surface layer and can be easily tilled. Row crops can be grown repeatedly if tilth and the content of organic matter are maintained by such measures as growing cover crops, incorporating crop residue into the soil, and minimizing tillage. Deep-rooted perennial crops, such as alfalfa, grow especially well. Measures that protect streambanks are needed in some areas to prevent lateral erosion in the fields.

Hay and pasture plants grow well on this soil. Overgrazing and grazing when the soil is wet can cause surface compaction, restrict plant growth, and deplete the stand of pasture plants. Using proper stocking rates, rotating livestock grazing, controlling weeds and brush, and deferring grazing early in spring are the main management concerns.

The potential productivity of this soil for sugar maple is moderately high. The hazard of off-road or off-trail erosion and hazard of erosion on roads and trails is slight. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival.

Flooding and the depth to saturated zone are the main management concerns if this soil is used as a site for dwellings with basements. Fill material is needed to elevate the dwellings above the high water level during periods of flooding. Adding fill material, installing drains around footings, and sealing foundations and basement walls help to prevent excessive wetness in basements. Alternative sites, out of the active flood plain, should be considered for construction.

Flooding, the depth to saturated zone, and frost action are the main management concerns if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material increases soil strength and reduces the potential for frost action. Building on raised fill material reduces the hazard of flooding and helps to overcome the wetness.

Flooding, poor filtering capacity, and the depth to saturated zone are management concerns if this soil is used as a site for septic tank absorption fields. Care is needed to prevent the contamination of ground water resulting from seepage. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed.

The capability subclass is 2w.

#### 10—Atkins silt loam

This soil is nearly level, very deep, and poorly drained. It is in the lowest parts on the flood plains along the major streams in the southern part of the county. Individual areas generally are oblong and are parallel to the adjacent streams. The areas range from 10 to 25 acres in size. Slopes commonly are smooth and ranges from 0 to 3 percent.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 4 inches; very dark gray silt loam

Subsoil:

4 to 16 inches; dark gray friable loam, with strong brown iron concentrations 16 to 24 inches; gray friable loam, with strong brown iron concentrations 24 to 38 inches; gray firm silty clay loam with strong brown iron concentrations

Substratum:

38 to 55 inches; gray friable sandy loam

55 to 72 inches; gray friable gravelly sandy loam with 20 percent gravel

Included in mapping are small areas of Holderton soils in the higher positions on the flood plains, soils that have a mucky surface layer, and soils that have sand and gravel within a depth of 36 inches. Also included are small areas of Udifluvents and Fluvaquents, which consist of unconsolidated alluvial deposits. Included areas make up about 10 to 20 percent of this unit.

#### Soil properties—

Permeability: Moderate in the surface layer, moderate to slow in the subsoil, and moderate or moderately rapid in the substratum

Available water capacity: High

Soil reaction: Very strongly acid or strongly acid above depths of 40 inches and very strongly acid to moderately acid below that depth

Water table: At the surface or to a depth of 0.5 feet

from October through June Flooding hazard: Frequent, long Depth to bedrock: More than 6 feet

Most of the acreage is idle land that supports water-tolerant grasses, brush, and trees. Some areas are used as pasture. Some drained areas are cultivated. This soil meets the requirements for hydric soils.

This soil is not suited to cultivated crops because of the prolonged wetness and the frequent flooding. Draining the soil commonly is difficult because few suitable outlets are available. Where it can be drained, this gravel-free soil is suited to many crops. Tilth and soil structure deteriorate if the soil is plowed when wet. Growing cover crops, incorporating crop residue into the soil, plowing only when the soil is at the proper moisture content, and rotating crops help to maintain a high content of organic matter and good tilth. Sod crops and cover crops protect the surface from scouring by floodwater.

Undrained areas of this soil can be used as pasture on a limited basis. The pasture grasses that can withstand wetness grow best. Restricting grazing when the soil is wet helps to prevent surface compaction and damage to the pasture. The pasture should be plowed, a seedbed prepared, and seed planted during dry periods in summer. Using proper stocking rates, rotating livestock grazing, and controlling weeds and brush are other management concerns.

The potential productivity of this soil for red maple is moderate. The hazard of off-road or off-trail erosion and erosion on roads and trails is slight. The potential for seedling mortality is high. Prolonged wetness results in a high seedling mortality rate and restricts the growth of roots. The trees that can withstand wetness grow best.

Depth to saturated zone and the hazard of flooding are the main management concerns if this soil is used as a site for dwellings with basements. Prolonged soil wetness is a severe limitation for the construction of dwellings with basements. Included areas of the somewhat poorly drained Holderton soils are better sites for these dwellings. Building on raised fill material helps to overcome the wetness and

flooding hazard. Alternative sites, out of the active flood plain, should be considered for construction.

Depth to saturated zone, the hazard of flooding, and frost action are the main management concerns if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and building on raised fill material reduce the hazard of flooding and help to overcome the wetness and frost action.

Flooding, the depth to the saturated zone, and the restricted permeability are management concerns if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed.

The capability subclass is 5w.

## 11B—Ischua channery silt loam, 3 to 8 percent slopes

This soil is gently sloping, moderately deep, and moderately well drained. It is on convex hilltops and side slopes in areas where the topography is influenced by the underlying bedrock. Siltstone and shale bedrock is at a depth of 20 to 40 inches. The soil occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are long and narrow and range from 10 to 30 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows— Surface layer:

0 to 6 inches; dark grayish brown channery silt loam with 15 percent channers

#### Subsoil:

- 6 to 18 inches; yellowish brown friable silt loam, with 10 percent channers 18 to 23 inches; brown friable channery silt loam, with light brownish gray iron depletions, and 20 percent channers
- 23 to 28 inches; light brownish gray firm channery silty clay loam, with strong brown iron accumulations, and 20 percent channers

#### Substratum:

28 inches; gray and light brownish gray siltstone and shale bedrock

Included in mapping are small areas of the somewhat poorly drained Gretor soils along drainageways and in slight depressions and small areas of Hornellsville soils, which have more clay in the subsoil than the Ischua soil. Also included are small areas of Salamanca soils which are very deep over bedrock, and small areas of soils that have a silt loam surface layer. Included areas make up about 10 to 25 percent of the unit.

#### Soil properties—

Permeability: Moderate in the surface layer and upper subsoil, slow or moderately slow in the lower subsoil

Available water capacity: Low or moderate

Soil reaction: Very strongly acid to moderately acid in the surface layer and upper subsoil, and very strongly acid to slightly acid in the lower subsoil and substratum Water table: At a depth of 1.5 to 2.0 feet from November through May

Flooding hazard: None

Depth to bedrock: 20 to 40 inches

Most of the acreage is woodland or is idle land that is reverting to brush and shrubs. Some areas are used for row crops grown in support of dairy farming. This soil meets the requirements for prime farmland.

This soil is well suited to most of the crops commonly grown in the county. The growing season is shorter for this soil than for nearby valley soils at lower elevations.

Tillage may be delayed by wetness in the spring. Draining the wetter included soils allows for earlier planting and more uniform management of the fields. Installing subsurface drainage systems is difficult because of the moderate depth to bedrock. A sufficient amount of lime and fertilizer is needed for most crops, especially legumes. Erosion is a hazard on long slopes in intensively cultivated areas. Minimizing tillage, farming on the contour, stripcropping, growing cover crops, and establishing diversions that break up long slopes help to control runoff and erosion. Growing cover crops, incorporating crop residue into the soil, and tilling only when the soil is at the proper moisture content help to maintain tilth and increase the content of organic matter.

The soil is well suited to pasture. Overgrazing and grazing when the soil is wet are the main concerns in managing pasture. The soil becomes compacted if it is grazed when wet. Overgrazing and surface compaction restrict plant growth and can damage pasture plants and increase the runoff rate. Applying a sufficient amount of lime and fertilizer, using proper stocking rates, rotating livestock grazing, and controlling weeds and brush are the main management concerns.

The potential productivity of this soil for black cherry is moderately high. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is moderate. The potential for seedling mortality is low. Seedlings should be planted early in spring, when the soil is moist.

The depth to saturated zone and the depth to bedrock are the main limitations if this soil is used as a site for dwellings with basements. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary. Where outlets are available, installing drains around footings and sealing foundations and basement walls help to prevent excessive wetness in basements.

Frost action, depth to bedrock, and depth to the saturated zone are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems help to overcome these limitations.

The depth to saturated zone, the restricted permeability, and the depth to bedrock are limitations on sites for septic tank absorption fields. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary. Care is needed to prevent the contamination of ground water resulting from seepage through the jointed and fractured bedrock. The absorption fields should be installed in suitable fill material. Installing a drainage system in the area around the absorption fields helps to overcome the seasonal wetness.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 2e.

## 11C—Ischua channery silt loam, 8 to 15 percent slopes

This soil is strongly sloping, moderately deep, and moderately well drained. It is on hilltops and side slopes in areas where the topography is influenced by the underlying bedrock. Soft siltstone and shale bedrock is at a depth of 20 to 40 inches. The soil occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are long and narrow and range from 10 to 50 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 6 inches; dark grayish brown channery silt loam, with 15 percent channers

#### Subsoil:

6 to 18 inches; yellowish brown friable silt loam, with 10 percent channers 18 to 23 inches; brown friable channery silt loam, with light brownish gray iron depletions, and 20 percent channers

23 to 28 inches; light brownish gray firm channery silty clay loam, with strong brown iron accumulations, and 20 percent channers

#### Substratum:

28 inches; gray and light brownish gray siltstone and shale bedrock

Included in mapping are small areas of the somewhat poorly drained Gretor soils along drainageways and in slight depressions and small areas of Hornellsville soils, which have more clay in the subsoil than the Ischua soil. Also included are small areas of Salamanca soils which are very deep over bedrock, and small areas of soils that have a silt loam surface layer. Included soils make up about 10 to 25 percent of the unit.

### Soil properties—

Permeability: Moderate in the surface layer and upper subsoil, slow or moderately slow in the lower subsoil

Available water capacity: Low or moderate

Soil reaction: Very strongly acid to moderately acid in the surface layer and upper subsoil, and very strongly acid to slightly acid in the lower subsoil and substratum Water table: At a depth of 1.5 to 2.0 feet from November through May

Flooding hazard: None

Depth to bedrock: 20 to 40 inches

Most of the acreage is woodland or is idle land that is reverting to brush and shrubs. Some areas are used for row crops grown in support of dairy farming. This soil is moderately well suited to most of the crops commonly grown in the county. The growing season is shorter for this soil than for nearby valley soils at lower elevations. The use of short-season or early maturing crop varieties is recommended. Tillage may be delayed by wetness in spring. Draining the wetter included soils allows for earlier planting and more uniform management of the fields. Installing subsurface drainage systems is difficult because of the moderate depth to bedrock. A sufficient amount of lime and fertilizer is needed for most crops, especially legumes. Erosion is a hazard on long slopes in intensively cultivated areas. Minimizing tillage, farming on the contour, stripcropping, growing cover crops, and establishing diversions that break up long slopes help to control runoff and erosion. Growing cover crops, incorporating crop residue into the soil, and tilling only when the soil is at the proper moisture content help to maintain tilth and increase the content of organic matter.

The soil is well suited to pasture. Overgrazing and grazing when the soil is wet are the main concerns in managing pasture. The soil becomes compacted if it is grazed when wet. Overgrazing and surface compaction can restrict plant growth, damage pasture plants, and increase the runoff rate. Applying a sufficient amount of lime and fertilizer, using stocking rates, rotating livestock grazing, and controlling weeds and brush are the main management concerns.

The potential productivity of this soil for black cherry is moderately high. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Seedlings should be planted early in spring, when the soil is moist.

The depth to saturated zone, depth to bedrock, and slope are the main limitations if this soil is used as a site for dwellings with basements. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary. Where outlets are available, installing drains

around footings and sealing foundations and basement walls help to prevent excessive wetness in basements.

Frost action, slope, depth to bedrock, and depth to saturated zone are the main limitations if this soil is used as a site for local roads and streets. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary. Adding coarse textured subgrade or base material and installing roadside drainage systems help to overcome the frost action and wetness limitations.

The depth to saturated zone, the restricted permeability, and the depth to bedrock are limitations if this soil is used as a site for septic tank absorption fields. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary. Care is needed to prevent the contamination of ground water resulting from seepage through the jointed and fractured bedrock. The absorption fields should be installed in suitable fill material. Installing a drainage system in the area around the absorption fields helps to overcome the depth to saturated zone.

Erosion is a serious hazard on construction sites. Minimal removal of vegetation, mulching, and quickly establishing plant cover help to control erosion and sedimentation.

The capability subclass is 3e.

## 11D—Ischua channery silt loam, 15 to 25 percent slopes

This soil is moderately steep, moderately deep, and moderately well drained. It is on valley sides that commonly are dissected by V-shaped gullies and receives runoff from the higher adjacent soils. This soil is in areas where the topography is influenced by the underlying bedrock. Bedrock is at a depth of 20 to 40 inches. This soil occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are long and narrow and range from 10 to 50 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 6 inches; dark grayish brown channery silt loam, with 15 percent channers

Subsoil:

- 6 to 18 inches; yellowish brown friable silt loam, with 10 percent channers 18 to 23 inches; brown friable channery silt loam, with light brownish gray iron depletions, and 20 percent channers
- 23 to 28 inches; light brownish gray firm channery silty clay loam, with strong brown iron accumulations, and 20 percent channers

Substratum:

28 inches; gray and light brownish gray siltstone and shale bedrock

Included in mapping are small areas of the somewhat poorly drained Gretor soils along drainageways and in slight depressions and small areas of Hornellsville soils, which have more clay in the subsoil than the Ischua soil. Also included are small areas of Salamanca soils which are very deep over bedrock, and small areas of soils that have a silt loam surface layer. Included soils make up about 10 to 25 percent of the unit.

#### Soil properties—

Permeability: Moderate in the surface layer and upper subsoil, slow or moderately slow in the lower subsoil

Available water capacity: Low or moderate

Soil reaction: Very strongly acid to moderately acid in the surface layer and upper subsoil, and very strongly acid to slightly acid in the lower subsoil and substratum Water table: At a depth of 1.5 to 2.0 feet from November through May

Flooding hazard: None

Depth to bedrock: 20 to 40 inches

Most of the acreage is woodland or is idle land that is reverting to brush and shrubs. Some areas are used for hay or pasture. A few areas are used for row crops.

This soil is poorly suited to cultivated crops because of the slope and the severe hazard of erosion. The growing season is shorter for this soil than for nearby valley soils at lower elevations. The use of short-season or early maturing crop varieties is recommended. The slope limits the use of farm equipment. Tillage may be slightly delayed by wetness in spring. Growing cover crops, minimizing tillage, and establishing diversions that break up long slopes and divert excess runoff help to control erosion. Where the slope permits, farming on the contour and stripcropping will help to reduce erosion. Because tilling the soil is difficult and erosion is a hazard, long-term sod crops are more practical than most other crops. A sufficient amount of lime and fertilizer is needed to maintain good crop growth.

This soil is better suited to hay and pasture than to cultivated crops. Overgrazing and grazing when the soil is wet restrict plant growth and can damage pasture plants. Erosion is a hazard in overgrazed areas. Using proper stocking rates, rotating livestock grazing, controlling weeds and brush, and selecting the appropriate species for seeding are the main management concerns. Because the soil is naturally acid, applications of lime and fertilizer are needed to improve the growth of most pasture plants.

The potential productivity of this soil for black cherry is moderately high. The hazard of off-road or off-trail erosion is moderate and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Seedlings should be planted early in spring, when the soil is moist. Building skid trails and roads across the slope minimizes gullying along the trails and roads.

The slope, depth to saturated zone, and the restricted depth to bedrock are the main limitations if this soil is used as a site for dwellings with basements. Extensive land shaping may be necessary to overcome the slope. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary. Installing drains around footings and sealing foundations and basement walls help to prevent excessive wetness in basements.

The slope, depth to saturated zone, frost action and depth to bedrock are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems increase soil strength and reduce wetness and the potential for frost action. Land grading helps to overcome the slope limitation. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary.

The slope is the main limitation if this soil is used as a site for septic tank absorption fields. Less sloping soils should be considered first. Placing drain fields on the contour will help to overcome this limitation. Other limitations include the depth to saturated zone, the restricted permeability and the depth to bedrock. Care is needed to prevent the contamination of ground water resulting from seepage through the jointed and fractured bedrock. The absorption fields should be installed in suitable fill material. Installing a drainage system in the area around the absorption fields helps to overcome the seasonal wetness.

Erosion is a hazard on construction sites. Minimal removal of vegetation, mulching, and quickly establishing plant cover help to control erosion and sedimentation.

The capability subclass is 4e.

## 11E—Ischua channery silt loam, 25 to 35 percent slopes

This soil is steep, moderately deep, and moderately well drained. It is on valley sides that commonly are dissected by V-shaped gullies and receives runoff from the higher adjacent soils. It is in areas where the topography is influenced by the underlying bedrock. Bedrock is at a depth of 20 to 40 inches. This soil occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are long and narrow and range from 10 to 75 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 6 inches; dark grayish brown channery silt loam, with 15 percent channers

#### Subsoil:

6 to 18 inches; yellowish brown friable silt loam, with 10 percent channers 18 to 23 inches; brown friable channery silt loam, with light brownish gray iron depletions, and 20 percent channers

23 to 28 inches; light brownish gray firm channery silty clay loam, with strong brown iron accumulations, and 20 percent channers

#### Substratum:

28 inches; gray and light brownish gray siltstone and shale bedrock

Included in mapping are small areas of the somewhat poorly drained Gretor soils along drainageways and in slight depressions and small areas of Hornellsville soils, which have more clay in the subsoil than the Ischua soil. Also included are small areas of Salamanca soils which are very deep over bedrock, and small areas of soils that have a silt loam surface layer. Included soils make up about 10 to 25 percent of the unit.

#### Soil properties—

Permeability: Moderate in the surface layer and upper subsoil, slow or moderately slow in the lower subsoil

Available water capacity: Low or moderate

Soil reaction: Very strongly acid to moderately acid in the surface layer and upper subsoil, and very strongly acid to slightly acid in the lower subsoil and substratum Water table: At a depth of 1.5 to 2.0 feet from November through May

Flooding hazard: None

Depth to bedrock: 20 to 40 inches

Most areas are wooded and provide wildlife habitat. Some of the less sloping areas are idle or are used as pasture.

This soil is not suited to cultivated crops or hay because of the slope and the very severe hazard of erosion. Operating farm equipment is very difficult because of the slope. A plant cover that controls runoff and erosion is essential.

The less sloping areas of this soil can be used as pasture on a limited basis. The growing season is shorter for this soil than for nearby valley soils at lower elevations. A good plant cover is needed. Prevention of overgrazing helps to protect the soil from erosion and gullying. Reseeding pastures is difficult because of the slope. Sufficient applications of lime and fertilizer are needed to improve native pastures.

The potential productivity of this soil for black cherry is moderately high. The hazard of off-road or off-trail erosion is moderate and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Seedlings should be planted early in spring, when the soil is moist. Building skid trails and roads across the slope minimizes gullying along the trails and roads.

The slope, depth to saturated zone, and the restricted depth to bedrock are the

main limitations if this soil is used as a site for dwellings with basements. Extensive land shaping may be necessary to overcome the slope. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary. Installing drains around footings and sealing foundations and basement walls help to prevent excessive wetness in basements.

The slope, depth to saturated zone, frost action, and depth to bedrock are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems increase soil strength, reduce the wetness, and the potential for frost action. Land grading helps to overcome the slope limitation. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary.

The slope is the main limitation if this soil is used for septic tank absorption fields. Less sloping soils should be considered first. Placing drain fields on the contour will help to overcome this limitation. Other limitations include depth to saturated zone, the restricted permeability, and the depth to bedrock. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary. Care is needed to prevent the contamination of ground water resulting from seepage through the jointed and fractured bedrock. The absorption fields should be installed in suitable fill material. Installing a drainage system in the area around the absorption fields helps to overcome the seasonal wetness.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 6e.

## 11F—Ischua channery silt loam, 35 to 50 percent slopes

This soil is very steep, moderately deep, and moderately well drained. It is on valley sides that receive runoff from the higher adjacent soils and commonly is dissected by V-shaped gullies. It is in areas where the topography is influenced by the underlying bedrock. Bedrock is at a depth of 20 to 40 inches. This soil occurs at elevations above 1800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are long and narrow and range from 10 to 75 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 6 inches; dark grayish brown channery silt loam, with 15 percent channers

#### Subsoil:

- 6 to 18 inches; yellowish brown friable silt loam, with 10 percent channers 18 to 23 inches; brown friable channery silt loam, with light brownish gray iron depletions, and 20 percent channers
- 23 to 28 inches; light brownish gray firm channery silty clay loam, with strong brown iron accumulations, and 20 percent channers

#### Substratum:

28 inches; gray and light brownish gray siltstone and shale bedrock

Included in mapping are small areas of the somewhat poorly drained Gretor soils along drainageways and in slight depressions and small areas of Hornellsville soils, which have more clay in the subsoil than the Ischua soil. Also included are small areas of Salamanca soils which are very deep over bedrock, and small areas of soils that have a silt loam surface layer. Included areas make up about 10 to 25 percent of the unit.

#### Soil properties—

Permeability: Moderate in the surface layer and upper subsoil, slow or moderately slow in the lower subsoil

Available water capacity: Low or moderate

Soil reaction: Very strongly acid to moderately acid in the surface layer and upper subsoil, and very strongly acid to slightly acid in the lower subsoil and substratum

Water table: At a depth of 1.5 to 2.0 feet from November through May

Flooding hazard: None

Depth to bedrock: 20 to 40 inches

Most areas are wooded and provide wildlife habitat.

This soil is not suited to cultivated crops, hay or pasture. The slope and the very severe hazard of erosion are the main management concerns. The soil is too steep for the safe operation of farm machinery. A plant cover that controls runoff and erosion is essential.

The potential productivity of this soil for black cherry is moderately high. The hazard of off-road or off-trail erosion and hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Seedlings should be planted early in spring, when the soil is moist. Building logging roads and skid trails across the slope helps to control erosion and minimizes gullying along the roads and trails.

Construction is extremely difficult or impractical on this soil. The slope is the main limitation if this soil is used as a site for local roads and streets, dwellings with basements, and waste disposal systems. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary. Erosion is a very serious hazard on construction sites. Minimal removal of vegetation, mulching, and quickly establishing plant cover help to control erosion and sedimentation. In most areas the native plant cover should not be removed.

The capability subclass is 7e.

# 12B—Franklinville channery silt loam, 3 to 8 percent slopes

This soil is gently sloping, very deep, and well drained. It is in convex areas on hilltops that receives little or no runoff from the higher adjacent soils. It occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are oblong and range from 10 to 30 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 3 inches; very dark gray channery silt loam with 15 percent channers

#### Subsoil:

3 to 14 inches; strong brown very friable channery silt loam, with 15 percent channers
14 to 32 inches; yellowish brown friable channery silt loam, with 25 percent channers
32 to 42 inches; dark yellowish brown firm channery silt loam, with 30 percent channers

#### Substratum:

42 to 72 inches; brown firm very channery silt loam, with 45 percent channers

Included in mapping are small areas of a moderately well drained soil that is similar to Franklinville; moderately well drained Salamanca soils, which have more clay in the subsoil than the Franklinville soils; and Franklinville soils that have a silt

loam surface layer. Also included are the Ischua soils which have bedrock within 40 inches and Yorkshire soils which have a fragipan. Included areas make up about 10 to 20 percent of this unit.

#### Soil properties—

Permeability: Moderate in the surface layer and upper subsoil, moderate or moderately slow in the lower subsoil and substratum

Available water capacity: Low to high

Soil reaction: Very strongly acid to moderately acid in the surface layer and subsoil,

and strongly acid to slightly acid in the substratum

Water table: At a depth of 3.0 to 6.0 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas have been cleared and are used for row crops, alfalfa, hay or pasture. The row crops are grown in support of dairy farming. Small woodlots are in some areas, and some of the acreage is idle land that is reverting to shrubs and brush. This soil meets the requirements for prime farmland.

This soil is well suited to most of the crops commonly grown in the county. The crops that are planted early in spring and deep-rooted perennial crops, such as alfalfa, grow especially well. The growing season is shorter on this soil than for nearby valley soils. The use of short-season or early maturing crop varieties is recommended. Crops respond well to sufficient applications of fertilizer and lime. Erosion is a hazard if the soil is intensively cultivated and is not protected by a plant cover. Incorporating crop residue into the soil, minimizing tillage, and growing cover crops help to maintain tilth and control erosion. Farming on the contour and stripcropping help to control erosion and conserve water during the growing season. In some years droughtiness restricts crop growth.

This soil is well suited to hay and pasture. It is especially suitable for grazing early in the growing season. Overgrazing can restrict plant growth and increase the hazard of erosion. Deep-rooted legumes grow well, but applications of lime and fertilizer are required to maintain the quality of the stands and to ensure good plant growth. Using proper stocking rates, rotating livestock grazing, and controlling weeds and brush by mowing annually are the main management concerns.

The potential productivity of this soil for black cherry is moderately high. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is moderate. The potential for seedling mortality is low. Seedlings should be planted early in spring, when the soil is moist.

This soil is somewhat limited as a site for dwellings with basements. Depth to the saturated zone is the main limitation. Where outlets are available, installing drains around footings and sealing foundations and basement walls help to prevent excessive wetness in basements.

Frost action is the main limitation if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems reduce the wetness and frost action.

The depth to saturated zone and the restricted permeability in the substratum are minor limitations on sites for septic tank absorption fields. Minimal engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system in the area around the absorption fields and adding permeable fill material help to overcome the wetness and the restricted permeability.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 2e.

# 12C—Franklinville channery silt loam, 8 to 15 percent slopes

This soil is strongly sloping, very deep, and well drained. It is in convex areas on hilltops and side slopes that do not receive runoff from the higher adjacent soils. It occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are oblong or rectangular and range from 10 to 75 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 3 inches; very dark gray channery silt loam with 15 percent channers

#### Subsoil:

3 to 14 inches; strong brown very friable channery silt loam, with 15 percent channers 14 to 32 inches; yellowish brown friable channery silt loam, with 25 percent channers 32 to 42 inches; dark yellowish brown firm channery silt loam, with 30 percent channers

#### Substratum:

42 to 72 inches; brown firm very channery silt loam, with 45 percent channers

Included in mapping are small areas of a moderately well drained soil that is similar to Franklinville soils; the moderately well drained Salamanca soils, which have more clay in the subsoil than the Franklinville soil; and Franklinville soils that have a silt loam surface layer. Also included are the Ischua soils which have bedrock within 40 inches and Yorkshire soils which have a fragipan. Included areas make up about 10 to 20 percent of this unit.

#### Soil properties—

Permeability: Moderate in the surface layer and upper subsoil, moderately slow or moderate in the lower subsoil and substratum

Available water capacity: Low to high

Soil reaction: Very strongly acid to moderately acid in the surface layer and subsoil, and strongly acid to slightly acid in the substratum

Water table: At a depth of 3.0 to 6.0 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most of the acreage is woodland or is idle land that is reverting to shrubs and brush. Some areas have been cleared and are used for row crops, alfalfa, hay or pasture. The row crops are grown in support of dairy farming.

This soil is moderately well suited to most of the crops commonly grown in the county. The growing season is shorter on this soil than for nearby valley soils. The use of short-season or early maturing crop varieties is recommended. The crops that are planted early in spring and deep-rooted perennial crops, such as alfalfa, grow especially well. Erosion is a serious hazard in intensively cultivated areas. Contour farming and stripcropping in combination with diversions, terraces, or grassed waterways help to control erosion. Incorporating crop residue into the soil, minimizing tillage, including sod crops in the crop rotation, and growing cover crops help to maintain tilth and increase the content of organic matter. Installing drainage in the wetter included areas helps to make management of the fields more efficient. Crops respond well to applications of fertilizer and lime. In some years droughtiness restricts crop growth.

This soil is well suited to hay and pasture. It is especially suitable for grazing early in the growing season. Overgrazing can restrict plant growth and increase the hazard of erosion. Deep-rooted legumes grow well, but applications of lime and fertilizer are

required to maintain the quality of the stands and to ensure good plant growth. Using proper stocking rates, rotating livestock grazing, and controlling weeds and brush by mowing annually are the main management concerns.

The potential productivity of this soil for black cherry is moderately high. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Seedlings should be planted early in spring, when the soil is moist. Building skid trails and roads across the slope minimizes gullying along the trails and roads.

The slope and depth to saturated zone are the main limitations if this soil is used as a site for dwellings with basements. Grading the land will help overcome the slope limitation. Where outlets are available, installing drains around footings and sealing foundations and basement walls help to prevent excessive wetness in basements.

Slope and frost action are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems reduce the potential for frost action.

The depth to the saturated zone, slope, and the restricted permeability in the substratum are minor limitations if this soil is used as a site for septic tank absorption fields. Minimal engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system upslope from the absorption fields and adding permeable fill material help to overcome the wetness and the restricted permeability.

Erosion is a serious hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible. The capability subclass is 3e.

## 12D—Franklinville channery silt loam, 15 to 25 percent slopes

This soil is moderately steep, very deep, and well drained. It is on uniformly sloping valley sides that receive runoff from the higher adjacent soils. It occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are oblong or rectangular and range from 15 to 75 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

#### Surface laver:

0 to 3 inches; very dark gray channery silt loam with 15 percent channers

#### Subsoil:

3 to 14 inches; strong brown very friable channery silt loam, with 15 percent channers 14 to 32 inches; yellowish brown friable channery silt loam, with 25 percent channers 32 to 42 inches; dark yellowish brown firm channery silt loam, with 30 percent channers

#### Substratum:

42 to 72 inches; brown firm very channery silt loam, with 45 percent channers

Included in mapping are small areas of a moderately well drained soil that is similar to Franklinville soils; the moderately well drained Salamanca soils, which have more clay in the subsoil than the Franklinville soil; and Franklinville soils that have a silt loam surface layer. Also included are the Ischua soils which have bedrock within 40 inches and Yorkshire soils which have a fragipan. Included areas make up about 10 to 20 percent of this unit.

#### Soil properties—

Permeability: Moderate in the surface layer and upper subsoil, moderately slow or moderate in the lower subsoil and substratum

Available water capacity: Low to high

Soil reaction: Very strongly acid to moderately acid in the surface layer and subsoil,

and strongly acid to slightly acid in the substratum

Water table: At a depth of more than 6 feet

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most of the acreage is woodland or is idle land that is reverting to brush and shrub. Some areas are used for hay or pasture. A small area is used for row crops.

This soil is poorly suited to cultivated crops because of the severe hazard of erosion and the slope. The growing season is shorter on this soil than for nearby valley soils. Operating farm equipment is difficult and hazardous because of the slope. Erosion is a serious hazard in cultivated areas. Minimizing tillage, growing cover crops, incorporating crop residue into the soil, tilling across the slope, stripcropping, and including sod crops in the cropping system help to maintain good tilth, increase the content of organic matter, and control erosion. Sufficient applications of lime and fertilizer are needed to maintain crop growth. In some years droughtiness restricts crop growth.

This soil is moderately well suited to hay and pasture. It is especially suitable for grazing early in the growing season. Overgrazing can restrict plant growth and increase the hazard of erosion. Deep-rooted legumes grow well, but applications of lime and fertilizer are required to maintain the quality of the stands and to ensure good plant growth. If plowing is necessary to establish a plant cover, plowing across the slope and leaving strips of sod help to control runoff. Using proper stocking rates, rotating livestock grazing, and controlling weeds and brush by mowing annually are the main management concerns.

The potential productivity of this soil for black cherry is moderately high. The hazard of off-road or off-trail erosion is moderate and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Seedlings should be planted early in spring, when the soil is moist. Building skid trails and roads across the slope minimizes gullying along the trails and roads.

The slope is the main limitation if this soil is used as a site for dwellings with basements. Extensive land modification and grading may be needed to overcome the slope.

The slope is the main limitation if this soil is used as a site for local roads and streets. Frost action is an additional limitation on sites for local roads and streets. Installing roadside drainage systems helps to overcome this limitation.

The slope and restricted permeability in the substratum are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Extensive land modification is needed to overcome the slope. Installing a subsurface drainage system upslope from the absorption fields and adding permeable fill material help to overcome the restricted permeability.

Erosion is a serious hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 4e.

# 12E—Franklinville channery silt loam, 25 to 35 percent slopes

This soil is steep, very deep, and well drained. It is on the side slopes of hills and on valley walls that receive runoff from the higher adjacent soils. It occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45

degrees F. Individual areas are oblong or occur as narrow strips on the side slopes. They range from 10 to several hundred acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 3 inches; very dark gray channery silt loam with 15 percent channers

#### Subsoil:

3 to 14 inches; strong brown very friable channery silt loam, with 15 percent channers
14 to 32 inches; yellowish brown friable channery silt loam, with 25 percent channers
32 to 42 inches; dark yellowish brown firm channery silt loam, with 30 percent channers

#### Substratum:

42 to 72 inches; brown firm very channery silt loam, with 45 percent channers

Included in mapping are small areas of a moderately well drained soil that is similar to Franklinville soils; the moderately well drained Salamanca soils, which have more clay in the subsoil than the Franklinville soil; and Franklinville soils that have a silt loam surface layer. Also included are the Ischua soils which have bedrock within 40 inches and Yorkshire soils which have a fragipan. Included areas make up about 10 to 20 percent of this unit.

#### Soil properties—

Permeability: Moderate in the surface layer and upper subsoil, moderately slow or moderate in the lower subsoil and substratum

Available water capacity: Low to high

Soil reaction: Very strongly acid to moderately acid in the surface layer and subsoil, and strongly acid to slightly acid in the substratum

Water table: At a depth of more than 6 feet

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are wooded and provide habitat for wildlife. Some of the acreage is idle land or is used as pasture.

This soil is not suited to cultivated crops or hay because of the slope and the very severe hazard of erosion. Operating farm equipment is very difficult because of the slope. A plant cover that controls runoff and erosion is essential.

The suitability of this soil for pasture is limited. A good plant cover is needed. Prevention of overgrazing helps to protect the soil from erosion and gullying. Reseeding pastures is difficult because of the slope. Sufficient applications of lime and fertilizer are needed to improve native pastures.

The potential productivity of this soil for black cherry is moderately high. The hazard of off-road or off-trail erosion is moderate and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Seedlings should be planted early in spring, when the soil is moist. Building skid trails and roads across the slope minimizes gullying along the trails and roads.

The slope is the main limitation if this soil is used as a site for dwellings with basements. Land shaping and grading help to overcome this limitation. Designing the dwellings so that they conform to the natural slope of the land reduces the amount of grading required.

The slope and frost action are the main limitations if this soil is used as a site for local roads and streets. Land grading and building on the contour help to overcome the slope limitation. Installing roadside drainage systems reduces the potential for frost action.

The slope and the restricted permeability in the substratum are limitations if this

soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste systems are installed. Extensive land modification is needed to overcome the slope.

Erosion is a serious hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible. The capability subclass is 6e.

## 14B—Hornellsville silt loam, 3 to 8 percent slopes

This soil is gently sloping, moderately deep, and somewhat poorly drained. It is on broad flats and side slopes in areas where the topography is influenced by the underlying bedrock. Soft shale bedrock is at a depth of 20 to 40 inches. This soil occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are oblong and range from 10 to 50 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 5 inches; dark grayish brown silt loam with 5 percent channers

Subsoil:

5 to 11 inches; yellowish brown friable silty clay loam, with light brownish gray iron depletions, and 5 percent channers

11 to 16 inches; light olive brown firm silty clay loam, with strong brown iron accumulations, and 5 percent channers

16 to 26 inches; brown firm silty clay, with light gray iron depletions, and 5 percent channers

26 to 34 inches; yellowish brown firm silty clay, with gray iron depletions, and 10 percent channers

Substratum:

34 inches; soft shale bedrock

Included in mapping are small areas of poorly drained soils along drainageways and in slight depressions, small areas of Gretor soils and moderately well drained Ischua soils, which have less clay than the Hornellsville soil and small areas of Salamanca soils which have less clay and are deeper to bedrock than the Hornellsville soils. Also included are small areas of Almond soils, which are very deep over bedrock and have less clay in the subsoil than the Hornellsville soil. Included areas make up about 10 to 25 percent of this unit.

#### Soil properties—

Permeability: Moderate in the surface layer, slow or very slow in the subsoil and substratum

Available water capacity: Low or moderate

Soil reaction: Extremely acid to strongly acid in the surface layer, and very strongly or strongly acid in the subsoil and substratum

Water table: At a depth of 0.5 to 1.5 feet from November through May

Flooding hazard: None

Depth to bedrock: 20 to 40 inches

Most of the acreage is woodland or is idle land that is reverting to woodland. Some areas are used for small grain, corn, or hay grown in support of dairy farming.

This soil is moderately well suited to most of the crops commonly grown in the county. The growing season is shorter for this soil than for nearby valley soils at lower elevations. The use of short-season or early maturing crop varieties is recommended. Unless a drainage system is installed, planting is delayed in spring, harvesting may

be difficult in fall, and the soil can be used only for short-season annual crops, hay or pasture. Erosion is a hazard on long slopes that are intensively cultivated. If a drainage system is installed, the soil is suited to the crops commonly grown in the county. Interceptor drains can divert runoff, and tile and open-ditch drainage systems can remove excess water. Installing subsurface drainage systems may be difficult because of the underlying bedrock. Contour farming and stripcropping in combination with diversions, terraces, or grassed waterways help to control runoff and erosion. Rotating crops, incorporating crop residue into the soil, minimizing tillage, and growing cover crops help to maintain tilth and increase the content of organic matter. Because of natural acidity and low fertility, the soil requires sufficient applications of fertilizer and lime.

This soil is suited to water-tolerant hay species and late-spring pasture. Overgrazing and grazing when the soil is wet are the main concerns of managing pasture. Grazing when the soil is wet causes soil compaction, restricts plant growth, and can deplete the stand of pasture grasses, and thus result in serious erosion and puddling. Plants respond well to applications of lime and fertilizer. Using proper stocking rates, rotating livestock grazing, deferring grazing when the soil is wet, controlling weeds and brush, and selecting water-tolerant species for seeding are the main management concerns.

The potential productivity of this soil for northern red oak is moderate. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is moderate. The potential for seedling mortality is high. The seasonal wetness increases the seedling mortality rate.

The depth to saturated zone, restricted depth to bedrock, and shrink-swell potential are the main limitations if this soil is used as a site for dwellings with basements. The shale bedrock generally can be ripped with a backhoe. Where outlets are available, installing drains around footings and sealing foundations and basement walls help to prevent excessive wetness in basements and reduce the shrink-swell potential.

The depth to saturated zone, shrink-swell potential, and frost action are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems decreases shrink-swell potential and reduce the wetness and the potential for frost action.

The depth to saturated zone, restricted permeability, and the moderate depth to bedrock are limitations if this soil is used as a site for septic tank absorption fields. The shale bedrock generally can be ripped with a backhoe. Care is needed to prevent the contamination of ground water resulting from seepage through the jointed and fractured bedrock. The absorption fields should be installed in suitable fill material that is more permeable. Installing a drainage system in the area around the absorption fields helps to overcome the seasonal wetness.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 3w.

## 14C—Hornellsville silt loam, 8 to 15 percent slopes

This soil is strongly sloping, moderately deep, and somewhat poorly drained. It is on valley sides and hillsides in areas where the topography is influenced by the underlying bedrock. Soft shale bedrock is at a depth of 20 to 40 inches. The soil receives runoff from the higher adjacent areas. It occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are long and narrow and range from 10 to 50 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer

0 to 5 inches; dark grayish brown silt loam with 5 percent channers

Subsoil:

5 to 11 inches; yellowish brown friable silty clay loam, with light brownish gray iron depletions, and 5 percent channers

- 11 to 16 inches; light olive brown firm silty clay loam, with strong brown iron accumulations, and 5 percent channers
- 16 to 26 inches; brown firm silty clay, with light gray iron depletions, and 5 percent channers
- 26 to 34 inches; yellowish brown firm silty clay, with gray iron depletions, and 10 percent channers

Substratum:

34 inches; soft shale bedrock

Included in mapping are small areas of poorly drained soils along drainageways and in slight depressions, small areas of Gretor soils and moderately well drained Ischua soils, which have less clay than the Hornellsville soil and small areas of Salamanca soils, which have less clay and are deeper to bedrock than the Hornellsville soils. Also included are small areas of Almond soils, which are very deep over bedrock and have less clay in the subsoil than the Hornellsville soil. Included areas make up about 10 to 25 percent of this unit.

# Soil properties—

Permeability: Moderate in the surface layer, slow or very slow in the subsoil and substratum

Available water capacity: Low or moderate

Soil reaction: Extremely acid to strongly acid in the surface layer, and very strongly or strongly acid in the subsoil and substratum

Water table: At a depth of 0.5 to 1.5 feet from November through May

Flooding hazard: None

Depth to bedrock: 20 to 40 inches

Most of the acreage is woodland or is idle land that is reverting to woodland. Some areas are used for small grain, corn, or hay grown in support of dairy farming.

This soil is moderately suited to most of the crops commonly grown in the county. The growing season is shorter for this soil than for nearby valley soils at lower elevations. The use of short-season or early maturing crop varieties is recommended. Unless a drainage system is installed, planting may be delayed in spring, harvesting may be difficult in fall, and the soil can be used only for short-season annual crops, hay or pasture. Erosion is a serious hazard on long slopes that are intensively cultivated. Interceptor drains can divert runoff, and tile and open-ditch drainage systems can remove excess water. Installing subsurface drainage systems may be difficult because of the underlying bedrock. Contour farming and stripcropping in combination with diversions, terraces, or grassed waterways help to control runoff and erosion. Rotating crops, incorporating crop residue into the soil, minimizing tillage, tilling at the proper moisture content, and growing cover crops help to maintain tilth and increase the content of organic matter. Because of natural acidity and low fertility, the soil requires sufficient applications of fertilizer and lime.

This soil is suited to water-tolerant hay species and late-spring pasture. Overgrazing and grazing when the soil is wet are the main concerns of managing pasture. Grazing when the soil is wet causes soil compaction, restricts plant growth, and can deplete the stand of pasture grasses and thus result in serious erosion and puddling. Plants respond well to applications of lime and fertilizer. Using proper

stocking rates, rotating livestock grazing, deferring grazing when the soil is wet, controlling weeds and brush, and selecting water-tolerant species for seeding are the main management concerns.

The potential productivity of this soil for northern red oak is moderate. The hazard of off-road or off-trail erosion is moderate and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is high. The seasonal wetness increases the seedling mortality rate.

The depth to saturated zone, slope, shrink-swell, and depth to bedrock and are the main limitations if this soil is used as a site for dwellings with basements. The shale bedrock generally can be ripped with a backhoe. Where outlets are available, installing drains around footings and sealing foundations and basement walls help to prevent excessive wetness in basements. Extensive land modification and grading may be needed to overcome the slope.

The depth to saturated zone, slope, frost action and high shrink-swell potential are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems reduce the potential for frost action and reduce the shrink-swell potential, and help to overcome the wetness limitation. Extensive land modification and grading may be needed to overcome the slope.

The depth to the saturated zone, restricted permeability, and the moderate depth to bedrock are limitations on sites for septic tank absorption fields. The shale bedrock generally can be ripped with a backhoe. Care is needed to prevent the contamination of ground water resulting from seepage through the jointed and fractured bedrock. The absorption fields should be installed in suitable fill material that is more permeable. Installing a drainage system in the area around the absorption fields helps to overcome the seasonal wetness.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 3e.

# 15B—Willdin channery silt loam, 3 to 8 percent slopes

This soil is gently sloping, very deep, and moderately well drained. It is on convex hilltops and on side slopes that receive runoff from the higher adjacent soils. It occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are oblong and range from 10 to 50 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 6 inches; dark brown channery silt loam, with 20 percent channers

Subsoil:

6 to 15 inches; yellowish brown friable channery silt loam, with 20 percent channers 15 to 22 inches; brown friable channery silt loam, with 20 percent channers

22 to 24 inches; pale brown friable channery silt loam, with brownish yellow iron accumulations, and 25 percent channers

24 to 60 inches; dark grayish brown, very firm very channery loam, with brownish yellow iron accumulations, and 45 percent channers

Substratum:

60 to 72 inches; light olive brown firm very channery silt loam, with 45 percent channers

Included in mapping are small areas of the somewhat poorly drained Napoli soils along drainageways and in seepage spots; and Yorkshire soils, which have more clay

in the subsoil than the Willdin soil. Also included are small areas of Franklinville soils which lack the fragipan and small areas of Willdin soils that have fewer channery fragments in the surface layer. Included areas make up about 10 to 20 percent of the unit.

### Soil properties—

Permeability: Moderate in the surface layer and subsoil above the fragipan, slow or very slow in the fragipan and substratum

Available water capacity: Very low to moderate

Soil reaction: Very strongly acid to moderately acid above the fragipan, very strongly acid to slightly acid in the fragipan, and strongly acid to slightly acid in the substratum

Water table: Perched at a depth of 1.2 to 2.0 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most of the acreage has been cleared and is used for row crops grown in support of dairy farming. The rest is woodland, pasture, or idle land.

This soil is well suited to most of the crops commonly grown in the county. The growing season is shorter for this soil than for nearby valley soils at lower elevations. The use of short-season or early maturing crop varieties is recommended. The surface layer has many flat stone fragments that interfere with tillage and harvesting operations but do not prevent cultivation. Draining the wetter included soils by random tile drains allows for earlier planting and more uniform management of the fields. Sufficient applications of lime are needed if legumes are to be established. Erosion is a hazard on long slopes and intensively cultivated areas. Farming on the contour, stripcropping, growing cover crops, and establishing diversions that break up long slopes help to control runoff and erosion. Minimizing tillage, growing cover crops, incorporating crop residue into the soil, and mulching increase the rate of water infiltration during the growing season and help to maintain tilth.

This soil is well suited to pasture. Overgrazing and grazing when the soil is wet are the main concerns in managing pasture. The soil becomes compacted if the pasture is grazed during wet periods. Overgrazing and surface compaction restrict plant growth, damage pasture plants, and increase the rate of runoff. Applying a sufficient amount of lime and fertilizer, using proper stocking rates, rotating livestock grazing, and controlling weeds and brush are the main management concerns.

The potential productivity of this soil for black cherry is moderately high. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is moderate. The potential for seedling mortality is low. Seedlings should be planted early in spring, when the soil is moist.

The depth to saturated zone is the main limitation if this soil is used as a site for dwellings with basements. Installing drains around footings and sealing foundations and basement walls will help to prevent excessive wetness in basements.

Frost action and depth to saturated zone are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems help to overcome these limitations.

The depth to saturated zone, restricted permeability, and depth to dense material are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste systems are installed. Installing a drainage system in the area around the absorption fields and adding permeable fill material help to overcome wetness and the restricted permeability.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 2w.

# 15C—Willdin channery silt loam, 8 to 15 percent slopes

This soil is sloping, very deep, and moderately well drained. It is on hillsides and side slopes that receive runoff from the higher adjacent soils. This soil occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are rectangular and range from 5 to 30 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 6 inches; dark brown channery silt loam, with 20 percent channers

#### Subsoil:

6 to 15 inches; yellowish brown friable channery silt loam, with 20 percent channers 15 to 22 inches; brown friable channery silt loam, with 20 percent channers

22 to 24 inches; pale brown friable channery silt loam, with brownish yellow iron accumulations, and 25 percent channers

24 to 60 inches; dark grayish brown, very firm very channery loam, with brownish yellow iron accumulations, and 45 percent channers

#### Substratum:

60 to 72 inches; light olive brown firm very channery silt loam, with 45 percent channers

Included in mapping are small areas of the somewhat poorly drained Napoli soils along drainageways and in seepage spots; and Yorkshire soils, which have more clay in the subsoil than the Willdin soil. Also included are small areas of Franklinville soils which lack the fragipan and small areas of Willdin soils that have fewer channery fragments in the surface layer. Included areas make up about 10 to 20 percent of the unit.

# Soil properties—

Permeability: Moderate in the surface layer and subsoil above the fragipan, slow or very slow in the fragipan and substratum

Available water capacity: Very low to moderate

Soil reaction: Very strongly acid to moderately acid above the fragipan, very strongly acid to slightly acid in the fragipan, and strongly acid to slightly acid in the substratum

Water table: Perched at a depth of 1.2 to 2.0 feet from November through May Flooding hazard: None

Depth to bedrock: More than 6 feet

Most of the acreage has been cleared and is used for row crops grown in support of dairy farming. The rest is woodland, pasture, or idle land.

This soil is moderately well suited to row crops if erosion and runoff are controlled. The growing season is shorter for this soil than for nearby valley soils at lower elevations. The use of short-season or early maturing crop varieties is recommended. The surface layer has many flat stone fragments which can interfere with tillage and harvesting operations but do not prevent cultivation. Draining the wetter included soils by random tile drains allows for earlier planting and more uniform management of the fields. Sufficient applications of lime are needed if legumes are to be established. Erosion is a hazard on long slopes and intensively cultivated areas. Farming on the contour, stripcropping, growing cover crops, and establishing diversions that break up long slopes help to control runoff and erosion. Minimizing tillage, growing cover crops, incorporating crop residue into the soil, and mulching increase the rate of water infiltration during the growing season and help to maintain tilth. Areas where conservation practices cannot be applied are better suited to deep-rooted legumes than to cultivated crops.

This soil is well suited to pasture. Overgrazing is the main concern because it can damage pasture plants. Grazing when the soil is wet early in spring can result in surface compaction, damage to the pasture and severe erosion. Rotating livestock grazing, using proper stocking rates, controlling weeds and brush, and deferring grazing when the soil is wet are the main management concerns.

The potential productivity of this soil for black cherry is moderately high. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Seedlings should be planted early in spring, when the soil is moist.

The slope and depth to saturated zone are the main limitations if this soil is used as a site for dwellings with basements. Installing drains around footings and sealing foundations and basement walls will help to prevent excessive wetness in basements. Extensive land modification and grading may be needed to overcome the slope.

Depth to saturated zone and slope are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems help to overcome these limitations. Extensive land modification and grading may be needed to overcome the slope.

The depth to saturated zone, restricted permeability, and depth to dense material are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste systems are installed. Installing a drainage system in the area around the absorption fields and adding permeable fill material help to overcome wetness and the restricted permeability.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 3e

# 15D—Willdin channery silt loam, 15 to 25 percent slopes

This soil is moderately steep, very deep, and moderately well drained. It is on smooth hillsides and valley sides that receive runoff from the higher adjacent soils. This soil occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are oblong and narrow and range from 10 to 40 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface laver:

0 to 6 inch; dark brown channery silt loam, with 20 percent channers

#### Subsoil:

6 to 15 inches; yellowish brown friable channery silt loam, with 20 percent channers 15 to 22 inches; brown friable channery silt loam, with 20 percent channers

22 to 24 inches; pale brown friable channery silt loam, with brownish yellow iron accumulations, and 25 percent channers

24 to 60 inches dark grayish brown, very firm very channery loam, with brownish yellow iron accumulations, and 45 percent channers

#### Substratum:

60 to 72 inches; light olive brown firm very channery silt loam, with 45 percent channers

Included in mapping are small areas of the somewhat poorly drained Napoli soils along drainageways and in seepage spots; and Yorkshire soils, which have more clay in the subsoil than the Willdin soil. Also included are small areas of Franklinville soils which lack the fragipan and small areas of Willdin soils that have fewer channery

fragments in the surface layer. Included soils make up about 10 to 20 percent of the unit.

# Soil properties—

Permeability: Moderate in the surface layer and subsoil above the fragipan, slow or very slow in the fragipan and substratum

Available water capacity: Very low to moderate

Soil reaction: Very strongly acid to moderately acid above the fragipan, very strongly acid to slightly acid in the fragipan, and strongly acid to slightly acid in the substratum

Water table: Perched at a depth of 1.2 to 2.0 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most of the acreage is woodland or is idle land that is reverting to brush and shrubs. Some areas are used for hay or pasture, and a few areas for row crops.

This soil is poorly suited to cultivated crops because of the slope and the severe hazard of erosion. The growing season is shorter for this soil than for nearby valley soils at lower elevations. The use of short-season or early maturing crop varieties is recommended. The slope limits the use of farm equipment. Tillage is slightly delayed in spring because of the wetness. Channery fragments on the surface interfere with tillage and cause excessive wear on machinery. Cultivated crops should be grown only occasionally, and the maximum number of conservation practices should be used. Growing cover crops, minimizing tillage, and establishing diversions that break up long slopes and divert excess runoff help to control erosion. Where the slope permits, farming on the contour and stripcropping are suitable. Because tilling the soil is difficult and erosion is a hazard, long-term sod crops are more practical than most other crops. A large amount of lime and fertilizer is needed to maintain good crop growth.

This soil is generally better suited to hay and pasture than to cultivated crops. Grazing when the soil is wet and overgrazing are main concerns in managing pasture. Grazing when the soil is wet causes surface compaction and damage to the pasture. Overgrazing increases the hazard of erosion. Plowing across the slope and leaving strips of sod help to control erosion when an area is reseeded. Rotating livestock grazing, using proper stocking rates, controlling weeds and brush, deferring grazing when the soil is wet, and applying the proper kinds and amounts of lime and fertilizer are the main management concerns.

The potential productivity of this soil for black cherry is moderately high. The hazard of off-road or off-trail erosion is moderate and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Seedlings should be planted early in spring, when the soil is moist. Building skid trails and roads across the slope minimizes gullying along the trails and roads.

The slope and depth to saturated zone are the main limitations if this soil is used as a site for dwellings with basements. Installing drains around footings and sealing foundations and basement walls will help to prevent excessive wetness in basements. Extensive land modification and grading may be needed to overcome the slope.

Depth to saturated zone and slope are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems help to overcome these limitations. Extensive land modification and grading may be needed to overcome the slope.

The slope, depth to saturated zone, restricted permeability, and depth to dense material are limitations on sites for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste systems are installed. Extensive land modification is needed to overcome the slope. Installing a

subsurface drainage system upslope from the absorption fields and adding permeable fill material help to overcome wetness and the restricted permeability. Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 4e.

# 16A—Almond silt loam, 0 to 3 percent slopes

This soil is nearly level, very deep, and somewhat poorly drained. It is on flat hilltops that receive little or no runoff and on upland benches that receive runoff from the higher adjacent soils. It occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are circular or irregularly shaped. They commonly range from 5 to 50 acres in size, but some are as large as 100 acres or more.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 7 inches, very dark grayish brown silt loam, with 10 percent channers

#### Subsoil:

- 7 to 11 inches, brown very friable silt loam, with yellowish brown iron concentrations and light brownish gray depletions, with 10 percent channers
- 11 to 22 inches, light olive brown friable channery silty clay loam, with strong brown iron concentrations and grayish brown and light brownish gray depletions, with 20 percent channers
- 22 to 37 inches, light olive brown firm channery silty clay loam, with yellowish brown iron concentrations and light brownish gray and grayish brown depletions, with 30 percent channers

### Substratum:

37 to 72 inches, olive brown firm channery silty clay loam, with yellowish brown iron concentrations and grayish brown depletions, with 30 percent channers

Included in mapping are small areas of poorly drained soils in slight depressions and along drainageways, Napoli soils which have a fragipan, and moderately well drained Salamanca soils where the soil is more sloping. Also included are small areas of Gretor and Hornellsville soils, which have bedrock at a depth of 20 to 40 inches, and small areas of soils that have a channery surface layer. Included soils make up about 15 to 25 percent of this unit.

### Soil properties—

Permeability: Moderate in the surface layer, moderately slow or moderate in the subsoil, slow or very slow in the substratum

Available water capacity: Moderate to high

Soil reaction: Very strongly acid to moderately acid in the solum, and from strongly acid to neutral in the substratum

Water table: At a depth of 0.5 to 1.5 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are used for small grain, corn, or hay grown in support of dairy farming. Much of the acreage is idle land or is farmed at a low level of intensity. Where drained, this soil meets the requirements for prime farmland.

This soil is moderately well suited to cultivated crops. The growing season is shorter than soils in valley areas. The use of short-season or early maturing crop varieties is recommended. Unless a drainage system is installed, planting is delayed

in spring and the soil can be used only for short-season annual crops. Harvesting crops during prolonged wet periods in fall is more difficult on this soil than on the more sloping adjacent Almond soils. If a drainage system is installed, the soil is suited to the crops commonly grown in the county. Wetness can be reduced by providing closely spaced tile and open-ditch drainage systems. Maintaining good tilth is a management concern in intensively cultivated areas. Crops respond well to sufficient applications of lime and fertilizer. Incorporating crop residue into the soil, growing cover crops, and tilling only when the soil is at the proper moisture content help to maintain tilth and the content of organic matter.

This soil is suited to water-tolerant hay and late-spring pasture. Overgrazing and grazing when the soil is wet restrict plant growth and can damage the pasture plants. Grazing when the soil is wet also results in compaction and puddling. Plants respond well to applications of lime and fertilizer. Using proper stocking rates, rotating livestock grazing, deferring grazing when the soil is wet, controlling weeds and brush, and selecting water-tolerant species for seeding are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion and the hazard of erosion on roads and trails is slight. The potential for seedling mortality is high. The seasonal wetness increases the seedling mortality rate.

The depth to saturated zone is the main limitation if this soil is used as a site for dwellings with basements. Where outlets are available, installing drains around footings reduces the wetness. Also, sealing foundations and basement walls helps to prevent excessive wetness in basements.

The depth to saturated zone and frost action are the main limitations if this soil is used as a site for local roads and streets. Installing roadside drainage systems and building on raised, coarse textured fill material help to overcome these limitations.

The depth to saturated zone and the restricted permeability in the subsoil and substratum are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system in the area around the absorption fields reduces the seasonal wetness, and adding permeable fill material helps to overcome the wetness and the restricted permeability.

The capability subclass is 3w.

# 16B—Almond silt loam, 3 to 8 percent slopes

This soil is gently sloping, very deep, and somewhat poorly drained. It is on broad hilltops and valley sides that receive little runoff from the higher adjacent soils. This soil occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are oblong or rectangular. They commonly are 5 to 75 acres in size, but range from 10 to several hundred acres.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 7 inches, very dark grayish brown silt loam, with 10 percent channers

#### Subsoil:

- 7 to 11 inches, brown very friable silt loam, with yellowish brown iron concentrations and light brownish gray depletions, with 10 percent channers
- 11 to 22 inches, light olive brown friable channery silty clay loam, with strong brown iron concentrations and grayish brown and light brownish gray depletions, with 20 percent channers
- 22 to 37 inches, light olive brown firm channery silty clay loam, with yellowish brown iron concentrations and light brownish gray and grayish brown depletions, with 30 percent channers

#### Substratum:

37 to 72 inches, olive brown firm channery silty clay loam, with yellowish brown iron concentrations and grayish brown depletions, with 30 percent channers

Included in mapping are small areas of poorly drained soils in slight depressions and along drainageways, Napoli soils which have a fragipan, and moderately well drained Salamanca soils where the soil is more sloping. Also included are small areas of Gretor and Hornellsville soils, which have bedrock at a depth of 20 to 40 inches, and small areas of soils that have a channery surface layer. Included soils make up about 15 to 25 percent of this unit.

### Soil properties—

Permeability: Moderate in the surface layer, moderately slow or moderate in the subsoil, slow or very slow in the substratum

Available water capacity: Moderate to high

Soil reaction: Very strongly acid to moderately acid in the solum and from strongly acid to neutral in the substratum

Water table: At a depth of 0.5 to 1.5 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Some areas are used for small grain, corn, or hay grown in support of dairy farming. A large acreage is idle land or is farmed at a low level of intensity. Some areas are wooded.

This soil is moderately well suited to cultivated crops. The growing season is shorter for this soil than for nearby valley soils. The use of short-season or early maturing crop varieties is recommended. Unless a drainage system is installed, planting is delayed in spring and the soil can be used only for short-season annual crops. Harvesting crops during prolonged wet periods in fall is difficult. The soil tends to become cloddy if plowed when wet. If drained and protected from erosion, this soil is suited to the crops commonly grown in the county. Interceptor drains can divert runoff from the higher adjacent soils, and tile and open-ditch drainage systems can remove excess water. Tile drains generally should be closely spaced because of the restricted permeability in the subsoil and substratum. Erosion can be controlled by stripcropping, farming on the contour, growing cover crops, and minimizing tillage. Incorporating crop residue into the soil, growing cover crops, and tilling only when the soil is at the proper moisture content help to maintain tilth and the content of organic matter. Crops respond well to sufficient applications of lime and fertilizer.

This soil is suited to water-tolerant hay and late-spring pasture. Overgrazing and grazing when the soil is wet restrict plant growth and can damage the pasture plants. Grazing when the soil is wet can cause surface compaction, restrict plant growth, deplete the stand of pasture grasses, and increase the hazard of erosion. Plants respond well to applications of lime and fertilizer. Using proper stocking rates, rotating livestock grazing, deferring grazing when the soil is wet, controlling weeds and brush, and selecting water-tolerant species for seeding are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is moderate. The potential for seedling mortality is high. The seasonal wetness increases the seedling mortality rate.

The depth to saturated zone is the main limitation if this soil is used as a site for dwellings with basements. Where outlets are available, installing drains around footings reduces the wetness. Also, sealing foundations and basement walls helps to prevent excessive wetness in basements.

The depth to saturated zone and frost action are the main limitations if this soil is used as a site for local roads and streets. Installing roadside drainage systems and building on raised fill material help to overcome these limitations.

The depth to saturated zone and the restricted permeability in the subsoil and substratum are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system in the area around the absorption fields reduces the seasonal wetness, and adding permeable fill material helps to overcome the wetness and the restricted permeability.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 3w.

# 16C—Almond silt loam, 8 to 15 percent slopes

This soil is strongly sloping, very deep, and somewhat poorly drained. It is on hillsides and valley sides that receive a considerable amount of runoff from the higher adjacent soils. This soil occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are oblong or rectangular, and range from 10 to 75 acres in size, but range from 10 to several hundred acres.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 7 inches, very dark grayish brown silt loam, with 10 percent channers

Subsoil:

- 7 to 11 inches, brown very friable silt loam, with yellowish brown iron concentrations and light brownish gray depletions, with 10 percent channers
- 11 to 22 inches, light olive brown friable channery silty clay loam, with strong brown iron concentrations and grayish brown and light brownish gray depletions, with 20 percent channers
- 22 to 37 inches, light olive brown firm channery silty clay loam, with yellowish brown iron concentrations and light brownish gray and grayish brown depletions, with 30 percent channers

#### Substratum:

37 to 72 inches, olive brown firm channery silty clay loam, with yellowish brown iron concentrations and grayish brown depletions, with 30 percent channers

Included in mapping are small areas of poorly drained soils in slight depressions and along drainageways, Napoli soils which have a fragipan, and moderately well drained Salamanca soils where the soil is more sloping. Also included are small areas of Gretor and Hornellsville soils, which have bedrock at a depth of 20 to 40 inches, and small areas of soils that have a channery surface layer. Included soils make up about 15 to 25 percent of this unit.

#### Soil properties—

*Permeability:* Moderate in the surface layer, moderately slow or moderate in the subsoil, slow or very slow in the substratum

Available water capacity: Moderate or high

Soil reaction: Very strongly acid to moderately acid in the solum and from strongly acid to neutral in the substratum

Water table: At a depth of 0.5 to 1.5 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Some areas are farmed at a low level of intensity. These areas are used for small grain, corn, or hay grown in support of dairy farming. A large acreage is woodland or is idle land that is reverting to woodland.

This soil is moderately well suited to cultivated crops. The growing season is shorter on this soil than for nearby valley soils. The use of short-season or early maturing crop varieties is recommended. Unless a drainage system is installed, planting is delayed in spring and the soil can be used only for short-season annual crops. Harvesting crops during prolonged wet periods in fall is difficult. The soil tends to become cloddy if plowed when wet. If the soil is drained and protected from erosion, it is suited to the crops commonly grown in the county. Interceptor drains can divert runoff from the higher adjacent soils, and tile and open-ditch drainage systems can remove excess water. Tile drains generally should be closely spaced because of the restricted permeability in the subsoil and substratum. Erosion can be controlled by stripcropping, farming on the contour, growing cover crops, and minimizing tillage. Incorporating crop residue into the soil and tilling only when the soil is at the proper moisture content help to maintain tilth and the content of organic matter. Crops respond well to sufficient applications of lime and fertilizer.

This soil is suited to water-tolerant hay and late-spring pasture. Overgrazing and grazing when the soil is wet are the main concerns in managing pasture. Grazing when the soil is wet causes surface compaction, restricts plant growth, and can deplete the stand of pasture grasses, and thus result in serious erosion. Plants respond well to applications of lime and fertilizer. Using proper stocking rates, rotating livestock grazing, deferring grazing when the soil is wet, controlling weeds and brush, and selecting water-tolerant species for seeding are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is high. The seasonal wetness increases the seedling mortality rate.

The depth to saturated zone and slope are the main limitations if this soil is used as a site for dwellings with basements. Where outlets are available, installing drains around footings reduces the wetness. Also, sealing foundations and basement walls helps to prevent excessive wetness in basements. Land modification and grading may be needed to overcome the slope.

The depth to saturated zone, frost action, and slope are the main limitations if this soil is used as a site for local roads and streets. Installing roadside drainage systems and building on raised fill material help to overcome these limitations. Extensive land modification and grading may be needed to overcome the slope limitation.

The depth to saturated zone and the restricted permeability in the subsoil and substratum are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system in the area around the absorption field reduces the seasonal wetness, and adding permeable fill material helps to overcome the wetness and the restricted permeability.

Erosion is a serious hazard during construction. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 3e.

# 17B—Salamanca silt loam, 3 to 8 percent slopes

This soil is gently sloping, very deep, and moderately well drained. It is in convex areas on hilltops and upper side slopes that receive little runoff from the higher adjacent soils. This soil occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are oblong or circular, and range from 5 to 50 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 8 inches, dark grayish brown silt loam, with 10 percent channers

Subsoil:

8 to 16 inches, brown very friable silt loam, with 5 percent channers
16 to 28 inches, light olive brown firm channery silty clay loam, with strong brown iron accumulations and grayish brown iron depletions, and 20 percent channers,
28 to 37 inches, light olive brown firm channery silt loam, with yellowish brown iron

accumulations and light brownish gray iron depletions, and 25 percent channers

Substratum:

37 to 72 inches, olive brown firm channery silt loam, with yellowish brown iron accumulations and grayish brown iron depletions, and 30 percent channers

Included in mapping are small areas of the somewhat poorly drained Almond soils in slight depressions and along drainageways, and moderately well drained Yorkshire soils, which have a fragipan in the subsoil. Also included are small areas of Ischua soils, which have bedrock at a depth of 20 to 40 inches, and small areas of soils that have a channery surface layer. Included soils make up about 15 to 25 percent of this unit.

### Soil properties—

Permeability: Moderate in the surface layer and upper part of the subsoil, and moderately slow to very slow in the lower subsoil and substratum

Available water capacity: Moderate to high

Soil reaction: Very strongly acid to moderately acid in the surface layer and subsoil, and very strongly acid to slightly acid in the substratum

Water table: At a depth of 1.5 to 2.0 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are wooded or are used for row crops grown in support of dairy farming. Some of the acreage is idle land that is reverting to brush and shrubs. This soil meets the requirements for prime farmland.

This soil is well suited to most of the crops commonly grown in the county. The growing season is shorter on this soil than for nearby valley soils. This may limit the choice of crops. The use of short-season or early maturing crop varieties is recommended. Tillage is delayed by wetness in spring. Draining the wetter included soils allows for earlier planting and more uniform management of the fields. Sufficient applications of lime are needed for most crops, especially legumes. Crops respond well to sufficient application of fertilizer. Erosion is a hazard on long slopes in intensively cultivated areas. Minimizing tillage, farming on the contour, stripcropping, growing cover crops, and establishing diversions that break up long slopes help to control runoff and erosion. Growing cover crops, incorporating crop residue into the soil, and tilling only when the soil is at the proper moisture content help to maintain tilth and increase the content of organic matter.

This soil is well suited to pasture. Overgrazing and grazing when the soil is wet are the main concerns in managing pasture. The soil becomes compacted if it is grazed when wet. Overgrazing and surface compaction restrict plant growth, damage pasture plants, and increase the runoff rate. Applying a sufficient amount of lime and fertilizer, using proper stocking rates, rotating livestock grazing, and controlling weeds and brush are the main management concerns.

The potential productivity of this soil for black cherry is moderately high. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is moderate. The potential for seedling mortality is low. Seedlings should be planted early in spring, when the soil is moist.

The depth to saturated zone is the main limitation if this soil is used as a site for dwellings with basements. Installing drains around footings and sealing foundations and basement walls will help to prevent excessive wetness in basements.

Frost action and the depth to saturated zone are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems help to overcome these limitations.

The depth to saturated zone and the restricted permeability in the lower subsoil and substratum are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system in the area around the absorption fields and adding permeable fill material help to overcome the seasonal wetness and the restricted permeability.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 2e.

# 17C—Salamanca silt loam, 8 to 15 percent slopes

This soil is strongly sloping, very deep, and moderately well drained. It is on hillsides and side slopes that receive runoff from the higher adjacent soils. It occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are oblong, and range from 10 to 75 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 8 inches, dark grayish brown silt loam, with 10 percent channers

#### Subsoil

8 to 16 inches, brown very friable silt loam, with 5 percent channers

16 to 28 inches, light olive brown firm channery silty clay loam, with strong brown iron accumulations and grayish brown iron depletions, and 20 percent channers,

28 to 37 inches, light olive brown firm channery silt loam, with yellowish brown iron accumulations and light brownish gray iron depletions, and 25 percent channers

### Substratum:

37 to 72 inches, olive brown firm channery silt loam, with yellowish brown iron accumulations and grayish brown iron depletions, and 30 percent channers

Included in mapping are small areas of the somewhat poorly drained Almond soils in slight depressions and along drainageways, and moderately well drained Yorkshire soils, which have a fragipan in the subsoil. Also included are small areas of Ischua soils, which have bedrock at a depth of 20 to 40 inches, and small areas of soils that have a channery surface layer. Included soils make up about 15 to 25 percent of this unit.

### Soil properties—

Permeability: Moderate in the surface layer and upper part of the subsoil, and moderately slow to very slow in the lower subsoil and substratum

Available water capacity: Moderate to high

Soil reaction: Very strongly acid to moderately acid in the surface layer and subsoil, and very strongly acid to slightly acid in the substratum

Water table: At a depth of 1.5 to 2.0 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are wooded or are used for row crops grown in support of dairy

farming. Some of the acreage is idle land that is reverting to brush and shrubs. This soil is moderately well suited to most of the crops commonly grown in the county. The growing season is shorter on this soil than for nearby valley soils. This may limit the choice of crops. The use of short-season or early maturing crop varieties is recommended. Tillage may be delayed by wetness in spring. Draining the wetter included soils allows for earlier planting and more uniform management of the fields. Sufficient applications of lime are needed for most crops, especially legumes. Crops respond well to sufficient applications of fertilizer. Erosion is a hazard on long slopes in intensively cultivated areas. Minimizing tillage, farming on the contour, stripcropping, growing cover crops, and establishing diversions that break up long slopes help to control runoff and erosion. Growing cover crops, incorporating crop residue into the soil, and tilling only when the soil is at the proper moisture content help to maintain tilth and increase the content of organic matter.

This soil is well suited to pasture. Overgrazing and grazing when the soil is wet are the main concerns in managing pasture. The soil becomes compacted if it is grazed when wet. Overgrazing and surface compaction restrict plant growth, damage pasture plants, and increase the runoff rate. Applying a sufficient amount of lime and fertilizer, using proper stocking rates, rotating livestock grazing, and controlling weeds and brush are the main management concerns.

The potential productivity of this soil for black cherry is moderately high. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Seedlings should be planted early in spring, when the soil is moist.

The depth to saturated zone is the main limitation if this soil is used as a site for dwellings with basements. Slope is also a minor limitation. Installing drains around footings and sealing foundations and basement walls help to prevent excessive wetness in basements. Land modification and grading may be needed to overcome the slope limitation.

Frost action, slope, and the depth to saturated zone are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems help to overcome these limitations. Extensive land modification and grading may be needed to overcome the slope.

The depth to saturated zone and the restricted permeability in the lower subsoil and substratum are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system in the area around the absorption fields and adding permeable fill material help to overcome the seasonal wetness and the restricted permeability.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 3e.

# 17D—Salamanca silt loam, 15 to 25 percent slopes

This soil is moderately steep, very deep, and moderately well drained. It is on smooth hillsides and valley sides that receive runoff from the higher adjacent soils. It occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are oblong or long and narrow, and range from 10 to 75 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 8 inches, dark grayish brown silt loam, with 10 percent channers

#### Subsoil:

8 to 16 inches, brown very friable silt loam, with 5 percent channers
16 to 28 inches, light olive brown firm channery silty clay loam, with strong brown iron accumulations and grayish brown iron depletions, and 20 percent channers
28 to 37 inches, light olive brown firm channery silt loam, with yellowish brown iron accumulations and light brownish gray iron depletions, and 25 percent channers

#### Substratum:

37 to 72 inches, olive brown firm channery silt loam, with yellowish brown iron accumulations and grayish brown iron depletions, and 30 percent channers

Included in mapping are small areas of the somewhat poorly drained Almond soils in slight depressions and along drainageways, and moderately well drained Yorkshire soils, which have a fragipan in the subsoil. Also included are small areas of Ischua soils, which have bedrock at a depth of 20 to 40 inches, and small areas of soils that have a channery surface layer. Included soils make up about 15 to 25 percent of this unit.

### Soil properties—

Permeability: Moderate in the surface layer and upper part of the subsoil, and moderately slow to very slow in the lower subsoil and substratum

Available water capacity: Moderate to high

Soil reaction: Very strongly acid to moderately acid in the surface layer and subsoil,

and very strongly acid to slightly acid in the substratum

Water table: At a depth of 1.5 to 2.0 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most of the acreage is woodland or is idle land that is reverting to brush and shrubs. Some areas are used for hay and pasture. A small acreage is used for cultivated crops.

This soil is poorly suited to cultivated crops because of the slope and the severe hazard of erosion. The growing season is shorter on this soil than for nearby valley soils. The slope limits the use of farm equipment. Tillage is slightly delayed by wetness in spring. Cultivated crops should be grown only occasionally, and the maximum number of conservation practices should be used. Minimizing tillage, growing cover crops, and establishing diversions that break up long slopes and divert excess runoff help to control erosion. Where the slope permits, farming on the contour and stripcropping are suitable. Because tilling the soil is difficult and erosion is a hazard, long-term sod crops are more practical than most other crops. Lime and fertilizer are usually needed to maintain good crop growth.

This soil generally is better suited to hay and pasture than to cultivated crops. Grazing when the soil is wet and overgrazing are the main concerns in managing pasture. Grazing when the soil is wet causes surface compaction and damage to the pasture. Overgrazing increases the hazard of erosion. Plowing across the slope and leaving strips of sod help to control erosion when an area is reseeded. Using proper stocking rates, rotating livestock grazing, applying a sufficient amount of lime and fertilizer, and controlling weeds and brush are the main management concerns.

The potential productivity of this soil for black cherry is moderately high. The hazard of off-road or off-trail erosion is moderate and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Seedlings should be planted early in spring, when the soil is moist. Building skid trails and roads across the slope minimizes gullying along the trails and roads.

The depth to saturated zone and the slope are the main limitations if this soil is used as a site for dwellings with basements. Installing drains around footings and sealing foundations and basement walls help to prevent excessive wetness in

basements. Installing interceptor drains and diversion ditches in upslope areas diverts surface and subsurface water from the dwellings. Land grading and shaping help to overcome the slope limitation.

Frost action, depth to saturated zone, and the slope are the main limitations if this soil is used as a site for local roads and streets. Land grading and building on the contour help to overcome the slope limitation. Adding coarse textured subgrade or base material and installing roadside drainage systems reduce the wetness and the potential for frost action.

The depth to saturated zone, slope, and the restricted permeability in the lower subsoil and substratum are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Extensive land modification is needed to overcome the slope. Installing a subsurface drainage system upslope from the absorption fields and adding permeable fill material help to overcome the seasonal wetness and the restricted permeability.

Erosion is a hazard on construction sites. It can be controlled by revegetating disturbed areas as soon as possible.

The capability subclass is 4e.

# 17E—Salamanca silt loam, 25 to 35 percent slopes

This soil is steep, very deep, and moderately well drained. It is on hillsides and valley sides that receive runoff from the higher adjacent soils. Many areas along the valley sides are deeply dissected by V-shaped gullies. It occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are elongated or occur as narrow strips on the side slopes. They commonly are 20 to 75 acres in size, but range from 10 to several hundred acres.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 8 inches, dark grayish brown silt loam, with 10 percent channers

#### Subsoil:

8 to 16 inches, brown very friable silt loam, with 5 percent channers
16 to 28 inches, light olive brown firm channery silty clay loam, with strong brown iron accumulations and grayish brown iron depletions, and 20 percent channers,
28 to 37 inches, light olive brown firm channery silt loam, with yellowish brown iron accumulations and light brownish gray iron depletions, and 25 percent channers

#### Substratum:

37 to 72 inches, olive brown firm channery silt loam, with yellowish brown iron accumulations and grayish brown iron depletions, and 30 percent channers Included in mapping are small areas of the somewhat poorly drained Almond soils in slight depressions and along drainageways, and moderately well drained Yorkshire soils, which have a fragipan in the subsoil. Also included are small areas of Ischua soils, which have bedrock at a depth of 20 to 40 inches, and small areas of soils that have a channery surface layer. Included areas make up about 15 to 25 percent of this unit.

#### Soil properties—

Permeability: Moderate in the surface layer and upper part of the subsoil, and moderately slow to very slow in the lower subsoil and substratum Available water capacity: Moderate to high Soil reaction: Very strongly acid to moderately acid in the surface layer and subsoil, and very strongly acid to slightly acid in the substratum

Water table: At a depth of 1.5 to 2.0 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are wooded and provide wildlife habitat. Some of the less sloping included areas are idle or are used as pasture.

This soil is not suited to cultivated crops or hay because of the slope and the severe hazard of erosion. Operating farm equipment is very difficult because of the slope. A plant cover that controls runoff and erosion is essential.

The less sloping areas of this soil can be used as pasture on limited basis. A good plant cover is needed. Prevention of overgrazing helps to protect the soil from erosion and gullying. Reseeding pastures is difficult because of the slope. Sufficient applications of lime and fertilizer are needed to improve native pastures.

The potential productivity of this soil for black cherry is moderately high. The hazard of off-road or off-trail erosion is moderate and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Seedlings should be planted early in spring, when the soil is moist. Building skid trails and roads across the slope minimizes gullying along the trails and roads.

The depth to saturated zone and the slope are the main limitations on sites for dwellings with basements. Installing drains around footings and sealing foundations and basement walls help to prevent excessive wetness in basements. Installing interceptor drains and diversion ditches in upslope areas diverts surface and subsurface water from the dwellings. Land grading and shaping help to overcome the slope limitation.

Frost action, depth to saturated zone, and the slope are the main limitations if this soil is used as a sites for local roads and streets. Land grading and building on the contour help to overcome the slope limitation. Adding coarse textured subgrade or base material and installing roadside drainage systems reduce the wetness and the potential for frost action.

The depth to saturated zone, slope and the restricted permeability in the lower subsoil and substratum are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Extensive land modification is needed to overcome the slope.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 6e.

# 18A—Pope fine sandy loam, 0 to 3 percent slopes

This soil is nearly level, very deep and well drained It is in the higher positions on the flood plains along the major streams in the southern part of the county. Individual areas commonly are oblong and are parallel to the adjacent streams. Areas range from 5 to 30 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 10 inches, dark grayish brown fine sandy loam

Subsoil:

10 to 17 inches, yellowish brown very friable very fine sandy loam 17 to 38 inches, dark yellowish brown very friable very fine sandy loam

Substratum:

38 to 64 inches, dark yellowish brown friable loam, with brown iron accumulations, with 10 percent gravel

64 to 80 inches, brown friable sandy loam, with 10 percent gravel

Included in mapping are small areas of the moderately well drained Philo and poorly drained Atkins soils in slight depressions and old drainageways. Also included are small areas of soils that are redder in color than the Pope soils and small areas of soils that have a gravelly surface layer. Also included are small areas of similar soils that have a water table at a depth of 3.0 to 6.0 feet. Included areas make up about 10 to 20 percent of the unit.

### Soil properties—

Permeability: Moderate or moderately rapid in the surface layer, subsoil, and

substratum

Available water capacity: Moderate to high

Soil reaction: Strongly acid or very strongly acid throughout the profile

Water table: At a depth of more than 6.0 feet

Flooding hazard: Occasional, brief Depth to bedrock: More than 6 feet

Most areas are used for cultivated crops grown in support of dairy farming. Some of the acreage in scattered areas that cannot be easily farmed is idle land or woodland. This soil meets the requirements for prime farmland.

This soil is well suited to cultivated crops. Flooding is a hazard, but it generally occurs early in spring, before crops are planted. Deep-rooted perennial crops, such as alfalfa, grow especially well. The soil has a stone free surface layer and can be easily tilled. If the wet included areas are drained, the fields can be managed more uniformly. Row crops can be grown repeatedly if tilth and the content of organic matter are maintained by such measures as incorporating crop residue into the soil, growing cover crops and minimizing tillage. Measures that protect streambanks and improve channels are needed in places to protect the soil from flooding.

Hay and pasture plants grow well on this soil. Overgrazing can damage pasture plants and restrict plant growth. Using proper stocking rates, rotating livestock grazing, controlling weeds and brush, and deferring grazing early in spring are the main management concerns.

The potential productivity of this soil for sugar maple is moderately high. There is a slight hazard for off-road or off-trail erosion and erosion on roads and trails. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival.

Flooding is the main management concern if this soil is used as a site for dwellings with basements. Fill material is needed to elevate the dwellings above the high water level during periods of flooding. Alternative sites, out of the active flood plain, should be considered for construction.

Flooding is the main management concern if this soil is used as a site for local roads and streets. Frost action is also a minor limitation. Building on raised fill material reduces the hazard of flooding. Adding coarse textured subgrade or base material reduces the potential for frost action.

Flooding is the main management concerns if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Care is needed to prevent the contamination of ground water resulting from seepage.

The capability class is 1.

# 19A—Olean silt loam, 0 to 3 percent slopes

This soil is nearly level, very deep and moderately well drained. It is on silt-mantled outwash plains and stream terraces. Individual areas are rectangular or oblong and range from 5 to 75 acres in size. Slopes are smooth.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 9 inches, dark grayish brown silt loam with less than 2 percent gravel

Subsoil

9 to 23 inches, yellowish brown very friable silt loam with less than 2 percent gravel 23 to 36 inches, brown friable silty clay loam, with yellowish brown iron accumulations and light brownish gray iron depletions and less than 2 percent gravel

Substratum:

36 to 72 inches, brown loose very gravelly loamy sand, with 55 percent gravel

Included in mapping are small areas of somewhat poorly drained Swormville soils that are similar to the Olean soils, but are in slight depressions and along drainageways. Also included are the moderately well drained Scio soils in slightly depressional areas, where the silt mantle is thicker than 40 inches, moderately well drained Castile soils that have gravel in the surface and subsoil, well drained Allard soils on knolls and terraces, and soils that have a sandy or gravelly surface layer. Some areas are rarely flooded, but only for a very brief period. Included soils make up about 10 to 20 percent of this unit.

### Soil properties—

Permeability: Moderate in the surface layer and upper subsoil, moderate or moderately slow in the lower part of the subsoil, and rapid or very rapid in the substratum Available water capacity: High

Soil reaction: Very strongly acid to moderately acid in the surface and subsoil, and very strongly acid to neutral in the substratum

Water table: At a depth of 1.5 to 2.0 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are used for cultivated crops. Small scattered woodlots are in some areas. This soil meets the requirements for prime farmland.

This soil is well suited to most crops commonly grown in the county, including vegetables and legumes. The seasonal high water table may delay tillage and planting in spring. Draining the wetter included soils allows for more efficient management of the fields. This nearly gravel-free soil can be easily tilled and is well suited to specialty crops. Deep-rooted perennial crops, such as alfalfa, grow especially well. Crops respond well to applications of lime and fertilizer. Row crops can be grown repeatedly if tilth and the content of organic matter are maintained by such measures as incorporating crop residue into the soil, growing cover crops, and minimizing tillage. The soil generally can be easily kept in good tilth.

This soil is well suited to hay and pasture. Overgrazing and grazing when the soil is wet are the main concerns in managing pasture. Overgrazing can damage pasture plants, and grazing when the soil is wet can compact the surface layer and cause the surface to become less permeable. Using proper stocking rates, rotating livestock grazing, deferring grazing when the soil is wet, controlling weeds and brush, and applying the proper kinds and amounts of lime and fertilizer are the main management concerns.

The potential productivity of this soil for sugar maple is moderately high. There is a slight hazard of off-road or off-trail erosion and erosion on roads and trails. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival.

The depth to saturated zone is the main limitation if this soil is used as a site for dwellings with basements. Where outlets are available, installing drains around footings and sealing foundations and basement walls help to prevent excessive wetness in basements.

The depth to saturated zone, shrink-swell potential, and frost action are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems help to overcome these limitations.

The depth to saturated zone and poor filtering capacity are limitations if this soil is used as a site for septic tank absorption fields, particularly in early spring. Care is needed to prevent the contamination of ground water resulting from the rapid or very rapid permeability in the substratum. Installing a drainage system in the area around the absorption fields helps to overcome the seasonal wetness. Sloughing and the caving in of the unstable silty and gravelly material are limitations affecting excavations.

The capability subclass is 2w.

# 19B—Olean silt loam, 3 to 8 percent slopes

This soil is gently sloping, very deep and moderately well drained. It is on silt-mantled outwash plains and stream terraces. Individual areas are rectangular or oblong and range from 5 to 75 acres in size. Slopes are smooth.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 9 inches, dark grayish brown silt loam with less than 2 percent gravel

Subsoil:

9 to 23 inches, yellowish brown very friable silt loam with less than 2 percent gravel 23 to 36 inches, brown friable silty clay loam, with yellowish brown iron accumulations and light brownish gray iron depletions and less than 2 percent gravel

Substratum:

36 to 72 inches, brown loose very gravelly loamy sand, with 55 percent gravel

Included in mapping are small areas of somewhat poorly drained Swormville soils that are similar to the Olean soil, but are in slight depressions and along drainageways. Also included are the moderately well drained Scio soils in slightly depressional areas, where the silt mantle is thicker than 40 inches, moderately well drained Castile soils that have more gravel in the surface and subsoil, well drained Allard soils on knolls and terraces, and soils that have a sandy or gravelly surface layer. Some areas are rarely flooded, but only for a very brief period. Included soils make up about 10 to 20 percent of this unit.

### Soil properties—

Permeability: Moderate in the surface layer and upper subsoil, moderate or moderately slow in the lower part of the subsoil, and rapid or very rapid in the substratum

Available water capacity: High

Soil reaction: Very strongly acid to moderately acid in the surface and subsoil, and very strongly acid to neutral in the substratum

Water table: At a depth of 1.5 to 2.0 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are used for crops grown in support of dairy operations. Some of the acreage is idle land. Small woodlots are in some areas. This soil meets the requirements for prime farmland.

This soil is well suited to most crops commonly grown in the county, including vegetables and legumes. The seasonal high water table may delay tillage and planting in spring. Draining the wetter included soils allows for more efficient management of the fields. This nearly gravel-free soil can be easily tilled and is well suited to specialty crops. Deep-rooted perennial crops, such as alfalfa, grow especially well. Crops respond well to applications of lime and fertilizer. Erosion is a concern on this unit, especially where slopes are long. Measures that minimize surface crusting and compaction, and reduce the hazard of erosion are needed. Growing cover crops, incorporating crop residue into the soil, and tilling only when the soil is at the proper moisture content help to maintain tilth and increase the content of organic matter. Farming on the contour, minimizing tillage, stripcropping, and maintaining a year-round plant cover help to control erosion.

This soil is well suited to hay and pasture. Overgrazing and grazing when the soil is wet are the main concerns in managing pasture. Overgrazing can damage pasture plants, and grazing when the soil is wet can compact the surface layer and cause it to be less permeable. Using proper stocking rates, rotating livestock grazing, deferring grazing when the soil is wet, controlling weeds and brush, and applying the proper kinds and amounts of lime and fertilizer are the main management concerns.

The potential productivity of this soil for sugar maple is moderately high. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is moderate. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival.

The depth to saturated zone is the main limitation if this soil is used as a site for dwellings with basements. Where outlets are available, installing drains around footings and sealing foundations and basement walls help to prevent excessive wetness in basements.

The depth to saturated zone, shrink-swell potential, and frost action are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems help to overcome these limitations.

The depth to saturated zone and poor filtering capacity are limitations if this soil is used as a site for septic tank absorption fields, particularly in early spring. Care is needed to prevent the contamination of ground water resulting from the rapid permeability in the substratum. Installing a drainage system in the area around the absorption fields helps to overcome the seasonal wetness. Sloughing and the caving in of the unstable silty and gravelly material are limitations affecting excavations.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 2e.

# 20A-Unadilla silt loam, 0 to 3 percent slopes

This soil is nearly level, very deep and well drained. It is on broad flats in the larger valleys. Individual areas are long and narrow, and range from 10 to 75 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 9 inches, brown silt loam

Subsoil:

9 to 14 inches, yellowish brown very friable silt loam 14 to 33 inches, brown friable silt loam, with 2 percent gravel

Substratum

33 to 55 inches, brown friable silt loam, with yellowish brown iron accumulations, and 2 percent gravel

55 to 72 inches, brown loose gravelly sandy loam, with 25 percent gravel

Included in mapping are small areas of the moderately well drained Scio and Olean soils along drainageways and in slight depressions; the moderately well drained Castile soils which have more gravel throughout; and well drained Allard soils, which are underlain by sand and gravel. Also included are a few areas of soils that have some stone fragments in the surface layer. Included soils make up about 10 to 20 percent of this unit.

# Soil properties—

Permeability: Moderate in the surface layer and subsoil, moderately rapid or rapid in the substratum below 40 inches

Available water capacity: High

Soil reaction: Very strongly acid to moderately acid in the surface layer and subsoil, and strongly acid to slightly alkaline in the substratum

Water table: At a depth of more than 6 feet

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are used for cultivated crops, alfalfa, vegetables or small fruit. Scattered woodlots are in some areas, and some of the acreage is idle land. This soil meets the requirements for prime farmland (fig. 4).

This soil is well suited to most of the crops commonly grown in the county, including vegetables, legumes, and small fruit. This gravel-free soil can be easily tilled. It can be cultivated early in spring. Draining the wetter included soils allows for more efficient management of the fields. Row crops can be grown repeatedly if tilth and the content of organic matter are maintained by such measures as incorporating crop residue into the soil, plowing only when the soil is at the proper moisture content, growing cover crops, and rotating crops.

This soil is well suited to pasture. Overgrazing and grazing when the soil is wet are the main concerns in managing pasture. Overgrazing damages pasture plants, and grazing when the soil is wet causes surface compaction and seals the surface. Using proper stocking rates, rotating livestock grazing, deferring grazing when the soil is wet, controlling weeds and brush, and applying the right kinds and amounts of fertilizer are the main management concerns.

The potential productivity of this soil for sugar maple is moderately high. There is a slight hazard for off-road or off-trail erosion and erosion on roads and trails. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival.

The soil has few limitations as a site for dwellings with basements.

Frost action is the main limitation if this soil is used as a site for local roads and streets. Adding coarse-textured subgrade or base material and installing roadside drainage systems reduce the potential for frost action.

The poor filtering capacity is a limitation if this soil is used as a site for septic tank absorption fields. Care is needed to prevent the contamination of ground water resulting from the moderately rapid or rapid permeability in the substratum.



Figure 4.—Alfalfa crop in an area of Unadilla silt loam, 0 to 3 percent slopes. This soil is considered prime farmland.

This soil is a potential source of topsoil. Some areas are excellent sites for athletic fields or other recreational uses that require a nearly level, stone-free site.

The capability class is 1.

# 20B—Unadilla silt loam, 3 to 8 percent slopes

This soil is gently sloping, very deep and well drained. It is on broad flats in the larger valleys. Individual areas are long and narrow, and range from 10 to 75 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows— Surface layer:

0 to 9 inches, brown silt loam

### Subsoil:

9 to 14 inches, yellowish brown very friable silt loam 14 to 33 inches, brown friable silt loam, with 2 percent gravel

### Substratum:

33 to 55 inches, brown friable silt loam, with yellowish brown iron accumulations, and 2 percent gravel

55 to 72 inches, brown loose gravelly sandy loam, with 25 percent gravel

Included in mapping are small areas of the moderately well drained Scio and Olean soils along drainageways and in slight depressions; the moderately well drained Castile soils, which have more gravel throughout; and well drained Allard soils, which are underlain by sand and gravel. Also included are a few areas of soils

that have some stone fragments in the surface layer. Included soils make up about 10 to 20 percent of this unit.

### Soil properties—

Permeability: Moderate in the surface layer and subsoil, moderately rapid or rapid in the substratum below 40 inches

Available water capacity: High

Soil reaction: Very strongly acid to moderately acid in the surface layer and subsoil, and strongly acid to slightly alkaline in the substratum

Water table: At a depth of more than 6 feet

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are used for cultivated crops, alfalfa, vegetables or small fruit. Scattered woodlots are in some areas, and some of the acreage is idle land. This soil meets the requirements for prime farmland.

This soil is well suited to most of the crops commonly grown in the county, including vegetables, legumes, and small fruit. This gravel-free soil can be easily tilled. It can be cultivated early in spring. Draining the wetter included soils allows for more efficient management of the fields. If cultivated, erosion is a concern, especially where slopes are long. Measures that minimize surface crusting and compaction and control runoff are needed. Farming on the contour, minimizing tillage, stripcropping, and maintaining a year-round plant cover help to control erosion. Growing cover crops, incorporating crop residue into the soil, and tilling only when the soil is at the proper moisture content help to maintain tilth and increase the content of organic matter.

This soil is well suited to pasture. Overgrazing and grazing when the soil is wet are the main concerns in managing pasture. Overgrazing damages pasture plants, and grazing when the soil is wet causes surface compaction and seals the surface. Using proper stocking rates, rotating livestock grazing, deferring grazing when the soil is wet, controlling weeds and brush, and applying the right kinds and amounts of fertilizer are the main management concerns.

The potential productivity of this soil for sugar maple is moderately high. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is moderate. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival.

The soil has few limitations as a site for dwellings with basements.

Frost action is the main limitation if this soil is used as a site for local roads and streets. Adding coarse-textured subgrade or base material, and installing roadside drainage systems reduce the potential for frost action.

The poor filtering capacity is a limitation as a site for septic tank absorption fields. Care is needed to prevent the contamination of ground water resulting from the moderately rapid or rapid permeability in the substratum.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 2e

# 20C-Unadilla silt loam, 8 to 15 percent slopes

This soil is strongly sloping, very deep and well drained. It is on rolling plains, remnant ridges and terraces in the larger valleys. Individual areas are long and narrow, and range from 10 to 30 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 9 inches, brown silt loam

Subsoil:

9 to 14 inches, yellowish brown very friable silt loam 14 to 33 inches, brown friable silt loam, with 2 percent gravel

Substratum:

33 to 55 inches, brown friable silt loam, with yellowish brown iron accumulations, and 2 percent gravel

55 to 72 inches, brown loose gravelly sandy loam, with 25 percent gravel

Included in mapping are small areas of the moderately well drained Scio and Olean soils along drainageways and in slight depressions; the moderately well drained Castile soils which have more gravel throughout; and well drained Allard soils, which are underlain by sand and gravel. Also included are a few areas of soils that have some stone fragments in the surface layer. Included soils make up about 10 to 20 percent of this unit.

# Soil properties—

Permeability: Moderate in the surface layer and subsoil, moderately rapid or rapid in the substratum below 40 inches

Available water capacity: High

Soil reaction: Very strongly acid to moderately acid in the surface layer and subsoil, and strongly acid to slightly alkaline in the substratum

Water table: At a depth of more than 6 feet

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are used for hay, pasture, or woodland. Some of the acreage is used for cultivated crops grown in support of dairy farming or is idle land.

This soil is moderately well suited to most of the crops commonly grown in the county. It is suited to deeply-rooted perennial crops, such as alfalfa. Erosion is a hazard where cultivated crops are grown. Draining the wetter included soils allows for more efficient management of the fields. This soil commonly has few stones and can be easily tilled. Interceptor drains can divert seepage and runoff from the higher adjacent soils and thus reduce the hazard of erosion. Farming on the contour, minimizing tillage, stripcropping, and maintaining a year-round plant cover also help to control erosion. Growing cover crops, incorporating crop residue into the soil, and tilling only when the soil is at the proper moisture content help to maintain tilth and increase the content of organic matter.

This soil is better suited to hay and pasture than to row crops. Deep-rooted legumes grow well, but applications of lime and fertilizer are required to maintain the quality of the stands and to ensure good plant growth. Overgrazing and grazing when the soil is wet are the main concerns in managing pasture. Overgrazing damages pasture plants, and grazing when the soil is wet causes surface compaction and seals the surface. Using proper stocking rates, rotating livestock grazing, deferring grazing when the soil is wet, controlling weeds and brush, and applying the right kinds and amounts of fertilizer are the main management concerns.

The potential productivity of this soil for sugar maple is moderately high. The hazard of off-road or off-trail erosion is moderate and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building skid trails and roads across the slope minimizes gullying along skid trails and roads.

The slope is the main limitation if this soil is used as a site for dwellings with basements. Land grading and shaping help to overcome this limitation.

Frost action and the slope are the main limitations if this soil is used as a site for local roads and streets. Land grading and building on the contour help to overcome the slope limitation. Installing roadside drainage systems and backfilling with coarse textured subgrade or base material reduce the potential for frost action.

The poor filtering capacity is a limitation if this soil is used as a site for septic tank absorption fields. Care is needed to prevent the contamination of ground water resulting from the moderately rapid or rapid permeability in the substratum.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 3e.

# 20D—Unadilla silt loam, 15 to 25 percent slopes

This soil is moderately steep, very deep and well drained. It is on rolling plains, remnant ridges and terraces in the larger valleys. Individual areas are long and narrow, and range from 10 to 30 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 9 inches, brown silt loam

Subsoil:

9 to 14 inches, yellowish brown very friable silt loam 14 to 33 inches, brown friable silt loam, with 2 percent gravel

Substratum:

33 to 55 inches, brown friable silt loam, with yellowish brown iron accumulations, and 2 percent gravel

55 to 72 inches, brown loose gravelly sandy loam, with 25 percent gravel

Included in mapping are small areas of the moderately well drained Scio and Olean soils along drainageways and in slight depressions; the moderately well drained Castile soils which have more gravel throughout; and well drained Allard soils, which are underlain by sand and gravel. Also included are a few areas of soils that have some stone fragments in the surface layer. Included areas make up about 10 to 20 percent of this unit.

### Soil properties—

Permeability: Moderate in the surface layer and subsoil, moderately rapid or rapid in the substratum below 40 inches

Available water capacity: High

Soil reaction: Very strongly acid to moderately acid in the surface layer and subsoil, and strongly acid to slightly alkaline in the substratum

Water table: At a depth of more than 6 feet

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most of the acreage is woodland or is idle land that is reverting to brush and shrubs. Some areas are used for hay, pasture or row crops.

This soil is poorly suited to cultivated crops. The slope and the hazard of erosion are the main management concerns. It is suited to deeply-rooted perennial crops, such as alfalfa. Operating farm equipment is difficult and hazardous because of the slope. Erosion is a serious hazard in cultivated areas. Cultivated crops should be grown only occasionally, and the maximum number of conservation practices should be used. Minimizing tillage, growing cover crops, incorporating crop residue into the soil, tilling across the slope, stripcropping, and including sod crops in the cropping

system help to maintain good tilth, increase the content of organic matter, and minimize erosion.

This soil is better suited to hay and pasture than to row crops. Deep-rooted legumes grow well, but applications of lime and fertilizer are required to maintain the quality of the stands and to ensure good plant growth. Overgrazing and grazing when the soil is wet are the main concerns in managing pasture. Overgrazing damages pasture plants, and grazing when the soil is wet causes surface compaction and seals the surface. Using proper stocking rates, rotating livestock grazing, deferring grazing when the soil is wet, controlling weeds and brush, and applying the right kinds and amounts of fertilizer are the main management concerns.

The potential productivity of this soil for sugar maple is moderately high. The hazard of off-road or off-trail erosion is moderate and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building skid trails and roads across the slope minimizes gullying along skid trails and roads.

The slope is the main limitation is this is used as a site for dwellings with basements. Land grading and shaping help to overcome this limitation.

Frost action and slope are the main limitations if this soil is used as a site for local roads and streets. Land grading and building on the contour help to overcome the slope limitation. Installing roadside drainage systems and backfilling with coarse textured subgrade or base material reduce the potential for frost action.

The poor filtering capacity and slope are limitations if this soil is used as a site for septic tank absorption fields. Extensive land grading and shaping may help to overcome the slope limitation. Care is needed to prevent the contamination of ground water resulting from the moderately rapid or rapid permeability in the substratum.

Erosion is a hazard on construction sites. It can be controlled by revegetating disturbed areas as soon as possible.

The capability subclass is 4e.

# 22A—Allard silt loam, 0 to 3 percent slopes

This soil is nearly level, very deep and well drained. It is on silt-mantled outwash plains and stream terraces. Individual areas are rectangular or oblong and range from 5 to 75 acres in size. Slopes are smooth.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 9 inches, dark grayish brown silt loam

Subsoil:

9 to 17 inches, yellowish brown very friable silt loam 17 to 23 inches, yellowish brown friable silt loam 23 to 34 inches, pale brown friable silt loam

Substratum:

34 to 38 inches, brown loose very gravelly loamy sand with 40 percent gravel 38 to 72 inches, grayish brown loose stratified very gravelly sand with 50 percent gravel

Included in mapping are small areas of moderately well drained Olean soils in slight depressions and along drainageways. Also included are the moderately well drained Scio soils in slightly depressional areas, where a thick mantle of silty material is underlain by gravelly deposits; well drained Chenango soils where gravel occurs throughout the soil, and soils that have a sandy or gravelly surface layer. Included areas make up about 10 to 20 percent of this unit.

### Soil properties—

Permeability: Moderate in the surface layer and subsoil, rapid or very rapid in the substratum

Available water capacity: High

Soil reaction: Very strongly acid to moderately acid in the surface layer and subsoil,

strongly acid to neutral in the substratum *Water table:* At a depth of more than 6 feet

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are used for cultivated crops. Small scattered woodlots are in some areas. This soil meets the requirements for prime farmland.

This soil is well suited to most crops. It can be used intensively for row crops. It can be cultivated early in spring. Deep-rooted perennial crops, such as alfalfa, grow especially well. Crops respond well to applications of lime and fertilizer. Row crops can be grown repeatedly if tilth and the content of organic matter are maintained by such measures as incorporating crop residue into the soil, growing cover crops or occasional sod crops, and minimizing tillage. The soil generally can be easily kept in good tilth.

This soil is well suited to hay and pasture. Using proper stocking rates, rotating livestock grazing, controlling weeds and brush, deferring grazing when the soil is wet, and applying the proper kinds and amounts of lime and fertilizer are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion and the hazard of erosion on roads and trails is slight. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival.

This soil has few limitations as a site for dwellings with basements.

Frost action is the main limitation if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material reduces the potential for frost action.

The poor filtering capacity is a limitation for septic tank absorption fields. Care is needed to prevent the contamination of the groundwater resulting from the rapid permeability in the substratum.

This soil is a potential source of topsoil. If the silty overburden is removed, this soil is a potential source of sand and gravel. Some areas are excellent sites for athletic fields or for other recreational uses that require a nearly level stone-free site.

The capability class is 1.

# 22B—Allard silt loam, 3 to 8 percent slopes

This gently sloping soil is very deep and well drained. It is on silt-mantled glacial outwash plains and stream terraces. Individual areas are rectangular or oblong in shape and are from 5 to 75 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 9 inches, dark grayish brown silt loam

Subsoil:

9 to 17 inches, yellowish brown very friable silt loam 17 to 23 inches, yellowish brown friable silt loam 23 to 34 inches, pale brown friable silt loam

#### Substratum:

34 to 38 inches, brown loose very gravelly loamy sand with 40 percent gravel 38 to 72 inches, grayish brown loose stratified very gravelly sand with 50 percent gravel

Included in mapping are small areas of moderately well drained Olean soils in slight depressions and along drainageways. Also included are the moderately well drained Scio soils in slightly depressional areas, where a thick mantle of silty material is underlain by gravelly deposits; well drained Chenango soils where gravel occurs throughout the soil; and soils that have a sandy or gravelly surface layer. Included soils make up about 10 to 20 percent of this unit.

### Soil properties—

Permeability: Moderate in the surface layer and subsoil, rapid or very rapid in the substratum

Available water capacity: High

Soil reaction: Very strongly acid to moderately acid in the surface layer and subsoil,

strongly acid to neutral in the substratum *Water table:* At a depth of more than 6 feet

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are used for cultivated crops. Small isolated woodlots are in some areas. This soil meets the requirements for prime farmland.

This soil is well suited to most intensively grown crops. The crops that are planted early in spring and deep-rooted perennial crops, such as alfalfa, grow especially well. Erosion is a hazard, particularly in areas where slopes are long. Farming on the contour and stripcropping help to control erosion. Returning crop residue to the soil, growing cover crops, and minimizing tillage help to maintain tilth and increase the content of organic matter. The soil generally can be easily kept in good tilth.

This soil is well suited to hay and pasture. Using proper stocking rates, rotating livestock grazing, controlling weeds and brush, deferring grazing when the soil is wet, and applying the proper kinds and amounts of lime and fertilizer are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is moderate. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival.

This soil has few limitations as a site for dwellings with basements.

Frost action is the main limitation if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material reduces the potential for frost action.

The poor filtering capacity is a limitation if this soil is used as a site for septic tank absorption fields. Care is needed to prevent the contamination of the groundwater resulting from the rapid or very rapid permeability in the substratum.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

This soil is a potential source of topsoil. If the silty overburden is removed, this soil is a potential source of sand and gravel.

The capability subclass is 2e.

# 25A—Chenango gravelly silt loam, 0 to 3 percent slopes

This soil is nearly level, very deep, and well drained. It is on outwash plains, beach ridges and stream terraces. Individual areas are elongated or irregularly shaped.

They commonly range from 5 to 50 acres in size, but some are as large as several hundred acres.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface laver:

0 to 9 inches, dark grayish brown gravelly silt loam with 20 percent gravel

#### Subsoil:

9 to 17 inches, yellowish brown friable gravelly silt loam, with 20 percent gravel 17 to 25 inches, yellowish brown very friable very gravelly silt loam, with 35 percent gravel

25 to 30 inches, dark yellowish brown very friable very gravelly loam, with 40 percent gravel

30 to 35 inches, brown very friable very gravelly coarse sandy loam, with 50 percent gravel

#### Substratum:

35 to 72 inches, grayish brown loose, stratified very gravelly sand, with 55 percent gravel

Included in mapping are small areas of the moderately well drained Castile soils in slight depressions and along the fringes of valleys, and soils that have a sandy surface layer. Also included are silty, well-drained Allard soils in areas where the Chenango soil adjoin them, and well drained Valois soils where the Chenango soils adjoin the glaciated hillsides. Included soils make up about 10 to 20 percent of this unit.

### Soil properties—

Permeability: Moderate or moderately rapid in the surface layer and subsoil, and rapid in the substratum

Available water capacity: Very low to moderate

Soil reaction: Very strongly acid to moderately acid in the surface layer and subsoil, and strongly acid to slightly alkaline in the substratum

Water table: At a depth of more than 6 feet

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are used for cultivated crops. Scattered woodlots are in a few areas. This soil meets the requirements for prime farmland.

This soil is well suited to cultivated crops and early season vegetables. It can be cultivated early in spring and can be used intensively for row crops. Droughtiness and small rock fragments on the surface are the main limitations. The rock fragments may interfere with the planting of some fine-seeded crops and can increase the wear on machinery. Deep-rooted perennial crops, such as alfalfa, grow especially well. Crops respond well to applications of lime and fertilizer. Minimizing tillage, growing cover crops, incorporating crop residue into the soil, and rotating crops improve tilth and help to maintain the content of organic matter. Increasing the content of organic matter improves the available water capacity of the soil.

This soil is well suited to hay and pasture. It is especially suitable for grazing early in the growing season. Plant growth may be limited in midsummer. As a result, care is needed to prevent overgrazing during this period. Using proper stocking rates, rotating livestock grazing, controlling weeds and brush, and applying the proper kinds and amounts of lime and fertilizer are the main management concerns.

The potential productivity of this soil for sugar maple is moderately high. The hazard of off-road or off-trail erosion and the hazard of erosion on roads and trails is slight. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival.

This soil has few limitations as a site for dwellings with basements.

Frost action is the main limitation if this soil is used as a site for local roads and streets. Removing the mantle of silty material and backfilling with coarse textured base material reduce the potential for frost action.

The poor filtering capacity is a limitation for septic tank absorption fields. Care is needed to prevent the contamination of ground water resulting from the rapid permeability in the substratum.

This soil is a potential source of sand and gravel.

The capability class is 2s.

# 25B—Chenango gravelly silt loam, 3 to 8 percent slopes

This soil is gently sloping, very deep, and well drained. It is on outwash plains, beach ridges and stream terraces. Individual areas are elongated or irregularly shaped. They commonly range from 5 to 50 acres in size, but some are as large as several hundred acres.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 9 inches, dark grayish brown gravelly silt loam with 20 percent gravel

Subsoil:

9 to 17 inches, yellowish brown friable gravelly silt loam, with 20 percent gravel 17 to 25 inches, yellowish brown very friable very gravelly silt loam, with 35 percent gravel

25 to 30 inches, dark yellowish brown very friable very gravelly loam, with 40 percent gravel

30 to 35 inches, brown very friable very gravelly coarse sandy loam, with 50 percent gravel

Substratum:

35 to 72 inches, grayish brown loose, stratified very gravelly sand, with 55 percent gravel

Included in mapping are small areas of the moderately well drained Castile soils in slight depressions and along the fringes of valleys and soils that have a sandy surface layer. Also included are silty, well-drained Allard soils in areas where the Chenango soil adjoins Allard soils, and well drained Valois soils where the Chenango soils adjoin the glaciated hillsides. Included soils make up about 10 to 20 percent of this unit.

### Soil properties—

Permeability: Moderate or moderately rapid in the surface layer and subsoil, and rapid in the substratum

Available water capacity: Very low to moderate

Soil reaction: Very strongly acid to moderately acid in the surface layer and subsoil, and strongly acid to slightly alkaline in the substratum

Water table: At a depth of more than 6 feet

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are used for cultivated crops. Scattered woodlots are in a few areas. This soil meets the requirements for prime farmland.

This soil is well suited to cultivated crops and to early season vegetables. It can be cultivated early in spring and can be used intensively for row crops. Droughtiness and small rock fragments on the surface are the main limitations. The rock fragments may

interfere with the planting of some fine-seeded crops and can increase the wear on machinery. Deep-rooted perennial crops, such as alfalfa, grow especially well. Crops respond well to applications of lime and fertilizer. Erosion is a hazard on long slopes if the soil is intensively cultivated and is not protected by a plant cover. Incorporating crop residue into the soil, minimizing tillage, and growing cover crops help to maintain tilth and control erosion. Farming on the contour and stripcropping help to control erosion and conserve water during the growing season.

This soil is well suited to hay and pasture. It is especially suitable for grazing early in the growing season. Plant growth may be limited in midsummer. As a result, care is needed to prevent overgrazing during this period. Using proper stocking rates, rotating livestock grazing, controlling weeds and brush, and applying the proper kinds and amounts of lime and fertilizer are the main management concerns.

The potential productivity of this soil for sugar maple is moderately high. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is moderate. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival.

This soil has few limitations as a site for dwellings with basements.

Frost action is the main limitation if this soil is used as a site for local roads and streets. Removing the surface layer and backfilling with coarse textured base material reduce the potential for frost action.

The poor filtering capacity is a limitation if this soil is used as a site for septic tank absorption fields. Care is needed to prevent the contamination of ground water resulting from the rapid permeability in the substratum.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

This soil is a potential source of sand and gravel.

The capability class is 2s.

# 25C—Chenango gravelly silt loam, 8 to 15 percent slopes

This soil is strongly sloping, very deep, and well drained. It is on rolling outwash plains, beach ridges and stream terraces. Individual areas are oblong and range from 10 to 50 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 9 inches, dark grayish brown gravelly silt loam with 20 percent gravel

#### Subsoil:

- 9 to 17 inches, yellowish brown friable gravelly silt loam, with 20 percent gravel 17 to 25 inches, yellowish brown very friable very gravelly silt loam, with 35 percent gravel
- 25 to 30 inches, dark yellowish brown very friable very gravelly loam, with 40 percent gravel
- 30 to 35 inches, brown very friable very gravelly coarse sandy loam, with 50 percent gravel

#### Substratum:

35 to 72 inches, grayish brown loose, stratified very gravelly sand, with 55 percent gravel

Included in mapping are small areas of the moderately well drained Castile soils in slight depressions and along the fringes of valleys and soils that have a sandy surface layer. Also included are silty, well-drained Allard soils in areas where the Chenango soil adjoins Allard soils, and well drained Valois soils where the Chenango soils adjoin the glaciated hillsides. Included areas make up about 10 to 20 percent of this unit.

### Soil properties—

Permeability: Moderate or moderately rapid in the surface layer and subsoil, and rapid in the substratum

Available water capacity: Very low to moderate

Soil reaction: Very strongly acid to moderately acid in the surface layer and subsoil,

and strongly acid to slightly alkaline in the substratum

Water table: At a depth of more than 6 feet

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are used for hay or for row crops grown in support of dairy farming. Scattered woodlots are in some areas, and some of the acreage is idle land.

This soil is moderately well suited to most of the crops commonly grown in the county. The crops that are planted early in spring and deep-rooted perennial crops, such as alfalfa, grow especially well. The slope, erosion, droughtiness, and gravel on the surface are the main limitations. The gravel may interfere with the planting of some crops and cause excessive wear on machinery. Erosion is a hazard on long slopes and in intensively cultivated areas. Farming on the contour, stripcropping, and establishing grassed waterways help to control erosion. Incorporating crop residue into the soil, minimizing tillage, growing cover crops, and including sod crops in the cropping sequence help to maintain tilth and reduce the hazard of erosion. These practices also increase the content of organic matter and thus improve the available water capacity of the soil. Crops respond well to applications of lime and fertilizer. Legumes respond especially well. In some years droughtiness restricts crop growth.

This soil is well suited to hay and pasture. It is especially suitable for grazing early in the growing season. Overgrazing can restrict plant growth, especially during dry periods, and can increase the hazard of erosion. Using proper stocking rates, rotating livestock grazing, and controlling weeds and brush by mowing annually are important management concerns.

The potential productivity of this soil for sugar maple is moderately high. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building skid trails and roads across the slope minimizes gullying along the trails and roads.

The slope is the main limitation if this soil is used as a site for dwellings with basements. Land grading and shaping help to overcome this limitation.

Frost action and the slope are the main limitations if this soil is used as a site for local roads and streets. Land grading and building on the contour help to overcome the slope limitation. Installing roadside drainage systems reduces the potential for frost action.

The poor filtering capacity is a limitation for septic tank absorption fields. Care is needed to prevent the contamination of groundwater resulting from the rapid permeability in the substratum.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

This soil is a potential source of sand and gravel.

The capability subclass is 3e.

# 25D—Chenango gravelly silt loam, 15 to 25 percent slopes

This soil is moderately steep, very deep, and well drained. It is on hilly outwash plains, on terrace risers, and on dissected deltas. Individual areas are irregular in shape and range from 5 to 30 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 9 inches, dark grayish brown gravelly silt loam with 20 percent gravel

#### Subsoil:

9 to 17 inches, yellowish brown friable gravelly silt loam, with 20 percent gravel 17 to 25 inches, yellowish brown very friable very gravelly silt loam, with 35 percent gravel

25 to 30 inches, dark yellowish brown very friable very gravelly loam, with 40 percent gravel

30 to 35 inches, brown very friable very gravelly coarse sandy loam, with 50 percent gravel

### Substratum:

35 to 72 inches, grayish brown loose, stratified very gravelly sand, with 55 percent gravel

Included in mapping are small areas of the moderately well drained Castile soils in slight depressions and along the fringes of valleys and soils that have a sandy surface layer. Also included are silty, well-drained Allard soils in areas where the Chenango soil adjoins Allard soils, and well drained Valois soils where the Chenango soils adjoin the glaciated hillsides. Included soils make up about 10 to 20 percent of this unit.

### Soil properties—

Permeability: Moderate or moderately rapid in the surface layer and subsoil, and rapid in the substratum

Available water capacity: Very low to moderate

Soil reaction: Very strongly acid to moderately acid in the surface layer and subsoil, and strongly acid to slightly alkaline in the substratum

Water table: At a depth of more than 6 feet

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most of the acreage is woodland or is idle land that is reverting to brush and shrubs. Some areas are used for hay, pasture or row crops.

This soil is poorly suited to cultivated crops. The slope, the hazard of erosion, and droughtiness are the main management concerns. Operating farm equipment is difficult and hazardous because of the slope. Erosion is a serious hazard in cultivated areas. Cultivated crops should be grown only occasionally, and the maximum number of conservation practices should be used. Minimizing tillage, growing cover crops, incorporating crop residue into the soil, tilling across the slope, stripcropping, and including sod crops in the cropping system help to maintain good tilth, increase the content of organic matter, and minimize erosion. Sufficient applications of lime and fertilizer are needed to maintain crop growth. In some years droughtiness restricts crop growth.

This soil is well suited to hay and pasture. It is especially suitable for grazing early in the growing season. Overgrazing can restrict plant growth, and can increase the hazard of erosion. Deep-rooted legumes can be grown, but applications of lime and fertilizer are required to maintain the quality of the stands and to ensure good plant growth. If plowing is necessary to establish a plant cover, plowing across the slope and leaving strips of sod help to control runoff. Using proper stocking rates, rotating livestock grazing, and controlling weeds and brush by mowing annually are important management concerns.

The potential productivity of this soil for sugar maple is moderately high. The

hazard of off-road or off-trail erosion is moderate and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building skid trails and roads across the slope minimizes gullying along the trails and roads.

The slope is the main limitation if this soil is used as a site for dwellings with basements. Land grading and shaping help to overcome this limitation. Designing the dwellings so that they conform to the natural slope of the land reduces the amount of grading required.

Slope and frost action are the main limitations if this soil is used as a site for local roads and streets. Land grading and building on the contour help to overcome the slope limitation. Installing roadside drainage systems reduces the potential for frost action.

The poor filtering capacity and the slope are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Extensive land modification is needed to overcome the slope limitations. Care is needed to prevent the contamination of ground water resulting from rapid permeability in the substratum.

Erosion is a serious hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible. The capability subclass is 4e.

# 25E—Chenango gravelly silt loam, 25 to 35 percent slopes

This soil is steep, very deep, and well drained. It is on terrace risers, the sides of ridges, and on the side slopes of dissected outwash plains. Individual areas are oblong or occur as narrow strips on the side slopes. They range from 10 to 50 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows— Surface layer:

0 to 9 inches, dark grayish brown gravelly silt loam with 20 percent gravel

#### Subsoil:

- 9 to 17 inches, yellowish brown friable gravelly silt loam, with 20 percent gravel 17 to 25 inches, yellowish brown very friable very gravelly silt loam, with 35 percent gravel
- 25 to 30 inches, dark yellowish brown very friable very gravelly loam, with 40 percent gravel
- 30 to 35 inches, brown very friable very gravelly coarse sandy loam, with 50 percent gravel

#### Substratum:

35 to 72 inches, grayish brown loose, stratified very gravelly sand, with 55 percent gravel

Included in mapping are small areas of the well drained Chadakoin and Valois soils, which formed in glacial till. Also included are narrow bands of Udifluvents on the floodplains along the streams that dissect the unit. Included soils make up about 15 to 25 percent of this unit.

#### Soil properties—

Permeability: Moderate or moderately rapid in the surface layer and subsoil, and rapid in the substratum

Available water capacity: Very low to moderate

Soil reaction: Very strongly acid to moderately acid in the surface layer and subsoil, and strongly acid to slightly alkaline in the substratum

Water table: At a depth of more than 6 feet

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are used as woodland and wildlife habitat. Some of the acreage is idle land, or is used as pasture.

This soil is not suited to cultivated crops or hay fields because of the slope and the very severe hazard of erosion. Operating farm equipment is very difficult and hazardous because of the slope. A plant cover is needed to control runoff.

This unit is poorly suited for pasture. A good plant cover is needed to prevent erosion. Prevention of overgrazing helps to protect the soil from erosion and gullying. Sufficient applications of lime and fertilizer are needed to improve native pastures.

The potential productivity of this soil for sugar maple is moderately high. The hazard of off-road or off-trail erosion is moderate and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building skid trails and roads across the slope minimizes gullying along the trails and roads.

The slope is the main limitation if this soil is used as a site for dwellings with basements. Land grading and shaping help to overcome this limitation. Designing the dwellings so that they conform to the natural slope of the land reduces the amount of grading required.

Slope and frost action are the main limitations on sites for local roads and streets. Land grading and building on the contour help to overcome the slope limitation. Installing roadside drainage systems reduces the potential for frost action.

The poor filtering capacity and the slope are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Extensive land modification is needed to overcome the slope limitations. Care is needed to prevent the contamination of ground water resulting from the rapid permeability in the substratum.

Erosion is a serious hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 6e.

# 25F—Chenango gravelly silt loam, 35 to 50 percent slopes

This soil is very steep, very deep, and well drained. It is on terrace risers, the sides of ridges and on the side slopes of dissected outwash plains. Individual areas are oblong or occur as narrow strips on the side slopes. They range from 10 to 50 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 9 inches, dark grayish brown gravelly silt loam with 20 percent gravel

### Subsoil:

9 to 17 inches, yellowish brown friable gravelly silt loam, with 20 percent gravel 17 to 25 inches, yellowish brown very friable very gravelly silt loam, with 35 percent gravel

25 to 30 inches, dark yellowish brown very friable very gravelly loam, with 40 percent gravel

30 to 35 inches, brown very friable very gravelly coarse sandy loam, with 50 percent gravel

### Substratum:

35 to 72 inches, grayish brown loose, stratified very gravelly sand, with 55 percent gravel

Included in mapping are small areas of the well drained Chadakoin and Valois soils, which formed in glacial till. Also included are narrow bands of Udifluvents on the floodplains along the streams that dissect the unit. Included areas make up about 15 to 25 percent of this unit.

#### Soil properties—

Permeability: Moderate or moderately rapid in the surface layer and subsoil and rapid in the substratum

Available water capacity: Very low to moderate

Soil reaction: Very strongly acid to moderately acid in the surface layer and subsoil,

and strongly acid to slightly alkaline in the substratum

Water table: At a depth of more than 6 feet

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are wooded and provide wildlife habitat.

This soil is not suited to cultivated crops, hay or pasture because of the slope and the very severe hazard of erosion. It is too steep for the safe operation of farm equipment. A plant cover that controls runoff and erosion is essential.

The potential productivity of this soil for sugar maple is moderately high. The hazard of off-road or off-trail erosion is severe and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building skid trails and roads across the slope minimizes gullying along the trails and roads.

Construction is extremely difficult or impractical on this soil. The slope is the main limitation if this soil is used as a site for dwellings with basements, local roads and streets and septic tank absorption fields. Erosion is a very serious hazard on construction sites. In most areas the native plant cover should not be removed.

The capability subclass is 7e.

# 26A—Chenango channery silt loam, fan, 0 to 3 percent slopes

This soil is nearly level, very deep, and well drained. It is on alluvial fans and remnant deltas. Individual areas are essentially triangular or fan shaped. They commonly are 5 to 20 acres in size, but range from of 5 to 50 acres.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 9 inches, brown channery silt loam, with 25 percent channers

Subsoil:

9 to 27 inches, yellowish brown friable channery silt loam, with 30 percent channers 27 to 45 inches, yellowish brown friable very channery fine sandy loam, with 45 percent channers

Substratum:

45 to 72 inches, brown friable very gravelly loamy sand, with 55 percent gravel

Included in mapping are small areas of the moderately well drained Castile soils near the lower margin of the fans. Also included are small areas of moderately well drained Middlebury soils, and small areas of Chenango soils that have a gravelly surface layer. Middlebury soils are in areas where the alluvial fans adjoin silty soils on alluvial flood plains, and well drained Valois soils where the Chenango soils adjoin the glaciated hillsides. Included soils make up about 10 to 25 percent of this unit.

#### Soil properties—

Permeability: Moderate or moderately rapid in the surface layer and subsoil, and rapid in the substratum

Available water capacity: Very low to moderate

Soil reaction: Very strongly acid to moderately acid in the surface layer and subsoil,

and strongly acid to slightly alkaline in the substratum

Water table: At a depth of 3.0 to 6.0 feet from November through May

Flooding hazard: Rare, very brief Depth to bedrock: More than 6 feet

Most areas are used for the crops that commonly are grown in support of dairy farming such as corn, oats and alfalfa. Small woodlots are in some areas, and some of the acreage is idle land or is used as pasture. The soil meets the requirements for prime farmland (fig. 5).

This soil is well suited to cultivated crops and to early season vegetables. It can be cultivated early in spring and can be used intensively for row crops. The rare flooding, droughtiness, and small stones in the soil are the main limitations for crop production. When flooding occurs it is usually early in spring, before crops are planted. The stones may interfere with planting and can cause excessive wear on machinery. Deep-rooted perennial crops, such as alfalfa, grow especially well. Crops respond well to applications of lime and fertilizer. Minimizing tillage, growing cover crops, incorporating crop residues into the soil, and rotating crops improve tilth and helps to maintain organic matter content. Increasing the organic matter content improves the available water capacity of the soil.



Figure 5.—Snap beans in an area of Chenango channery silt loam, fan, 0 to 3 percent slopes. This soil is considered to be prime farmland, but the rock fragments on the surface can interfere with tillage in some areas.

This soil is well suited to hay and pasture. It is especially suitable for grazing early in the growing season. Plant growth may be limited in midsummer. As a result, care is needed to prevent overgrazing during this period. Using proper stocking rates, rotating livestock grazing, controlling weeds and brush, and applying the proper kinds and amounts of lime and fertilizer are the main management concerns.

The potential productivity of this soil for sugar maple is moderately high. The hazard of off-road or off-trail erosion and the hazard of erosion on roads and trails is slight. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival.

The main management concerns on sites for dwellings with basements are the hazard of flooding and depth to saturated zone early in spring. Installing drains around footings and sealing foundations and basement walls help to prevent excessive wetness in basements.

Frost action and rare flooding are the main management concerns if this soil is used as a site for local roads and streets. Building on raised fill material reduces the hazard of flooding and the potential for frost action.

The poor filtering capacity, depth to saturated zone and rare flooding are limitations if this soil is used as a site for septic tank absorption fields. Building on raised fill material reduces the hazard of flooding. Installing a drainage system in the area around the absorption fields may help to overcome the seasonal wetness. Care is needed to prevent the contamination of ground water resulting from the rapid permeability in the substratum.

This soil is a potential source of sand and gravel.

The capability class is 2s.

# 26B—Chenango channery silt loam, fan, 3 to 8 percent slopes

This soil is gently sloping, very deep, and well drained. It is on alluvial fans and remnant deltas. Individual areas are essentially triangular or fan shaped. They commonly are 5 to 20 acres in size, but range from 5 to 50 acres.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 9 inches, brown channery silt loam, with 25 percent channers

Subsoil:

9 to 27 inches, yellowish brown friable channery silt loam, with 30 percent channers 27 to 45 inches, yellowish brown friable very channery fine sandy loam, with 45 percent channers

Substratum:

45 to 72 inches, brown friable very gravelly loamy sand, with 55 percent gravel

Included in mapping are small areas of the moderately well drained Castile soils near the lower margin of the fans. Also included are small areas of moderately well drained Middlebury soils, and small areas of Chenango soils that have a gravelly surface layer. Middlebury soils are in areas where the alluvial fans adjoin silty soils on alluvial flood plains, and well drained Valois soils where the Chenango soils adjoin the glaciated hillsides. Included soils make up about 10 to 25 percent of this unit.

#### Soil properties—

Permeability: Moderate or moderately rapid in the surface layer and subsoil, and rapid in the substratum

Available water capacity: Very low to moderate

Soil reaction: Very strongly acid to moderately acid in the surface layer and subsoil, and strongly acid to slightly alkaline in the substratum

Water table: At a depth of 3.0 to 6.0 feet from November through May

Flooding hazard: Rare, very brief Depth to bedrock: More than 6 feet

Most areas are used for the crops that commonly are grown in support of dairy farming such as corn, oats and alfalfa. Small woodlots are in some areas, and some of the acreage is idle land or is used as pasture. The soil meets the requirements for prime farmland.

This soil is well suited to cultivated crops and to early season vegetables. It can be cultivated early in spring and can be used intensively for row crops. The rare flooding, droughtiness, and small stones in the soil are the main limitations for crop production. When flooding occurs, it is usually early in spring, before crops are planted. The stones may interfere with planting and can cause excessive wear on machinery. Deep-rooted perennial crops, such as alfalfa, grow especially well. Crops respond well to applications of lime and fertilizer. Erosion is a hazard on long slopes if the soil is intensively cultivated and is not protected by a plant cover. Incorporating crop residue into the soil, minimizing tillage, and growing cover crops help to maintain tilth and control erosion. Farming on the contour and stripcropping help to control erosion and conserve water during the growing season.

This soil is well suited to hay and pasture. It is especially suitable for grazing early in the growing season. Plant growth may be limited in midsummer. As a result, care is needed to prevent overgrazing during this period. Using proper stocking rates, rotating livestock grazing, controlling weeds and brush, and applying the proper kinds and amounts of lime and fertilizer are the main management concerns.

The potential productivity of this soil for sugar maple is moderately high. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is moderate. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival.

The main management concerns on sites for dwellings with basements are rare flooding and depth to saturated zone early in spring. Installing drains around footings and sealing foundations and basement walls help to prevent excessive wetness in basements.

Frost action and the hazard of flooding are the main management concerns if this soil is used as a site for local roads and streets. Building on raised fill material reduces the hazard of flooding and the potential for frost action.

The poor filtering capacity, depth to saturated zone, and rare flooding are limitations if this soil is used as a site for septic tank absorption fields. Installing a drainage system in the area around the absorption fields may help to overcome the seasonal wetness. Care is needed to prevent the contamination of ground water resulting from the rapid permeability in the substratum.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The soil is a potential source of sand and gravel.

The capability class is 2s.

## 27A—Castile gravelly silt loam, 0 to 3 percent slopes

This soil is nearly level, very deep, and moderately well drained. It is on outwash plains, beach ridges, and stream terraces. Individual areas are elongated or irregularly shaped. They commonly range from 5 to 50 acres in size, but some are as large as several hundred acres.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 10 inches, dark grayish brown gravelly silt loam with 30 percent gravel

Subsoil:

10 to 17 inches, yellowish brown friable very gravelly silt loam, with 35 percent gravel 17 to 30 inches, light olive brown friable very gravelly loam, with yellowish brown iron accumulations and gray iron depletions and 40 percent gravel

Substratum:

30 to 72 inches, grayish brown stratified loose very gravelly sand, with 55 percent gravel

Included in mapping are small areas of the somewhat poorly drained Red Hook soils in slight depressions and along the fringes of valleys and soils that have a sandy surface layer. Chenango soils are a common inclusion on higher rises and knolls. Olean soils are common inclusions where there is a thicker silty surface layer, especially along the edges of alluvial fans. Pawling soils are included along streams. Included soils make up about 10 to 20 percent of this unit.

#### Soil properties—

Permeability: Moderate or moderately rapid in the surface layer, moderately rapid in the subsoil, and rapid in the substratum

Available water capacity: Very low to moderate

Soil reaction: Very strongly acid to moderately acid in the surface layer and subsoil, and strongly acid to neutral in the substratum

Water table: At a depth of 1.5 to 2.0 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are used for cultivated crops. Scattered woodlots are in a few areas. This soil meets the requirements for prime farmland.

This soil is well suited to cultivated crops and to early season vegetables. Seasonal wetness in the early spring and fall may delay tillage and harvesting activities. It can be used intensively for row crops. Small rock fragments on the surface are a limitation. The rock fragments may interfere with the planting of some fine-seeded crops and can increase the wear on machinery. Deep-rooted perennial crops, such as alfalfa, grow especially well. Crops respond well to applications of lime and fertilizer. Minimizing tillage, growing cover crops, incorporating crop residue into the soil, and rotating crops improve tilth and help to maintain the content of organic matter. Increasing the content of organic matter improves the available water capacity of the soil.

This soil is well suited to hay and pasture. It is suitable for grazing early in the growing season. Using proper stocking rates, rotating livestock grazing, controlling weeds and brush, and applying the proper kinds and amounts of lime and fertilizer are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion and the erosion on roads and trails is slight. The potential for seedling mortality is low. Planting seedlings in spring when the soil is moist, helps to ensure their survival.

The depth to saturated zone is the main limitation if this soil is used as a site for dwellings with basements. If suitable outlets can be found, installing drainage tile along the footings of the foundation and sealing the foundation can help overcome wetness.

Frost action and depth to saturated zone are the main limitations if this soil is used as a site for local roads and streets. Removing the mantle of silty material and backfilling with coarse textured base material reduce the potential for frost action. Installing roadside drainage systems reduces the potential for frost action and wetness.

The depth to saturated zone and poor filtering capacity are limitations if this soil is used as a site for septic tank absorption fields. Care is needed to prevent the contamination of ground water resulting from the rapid permeability in the substratum. Installing a drainage system in the area around the absorption fields may help to overcome the seasonal wetness.

This soil is a potential source of sand and gravel.

The capability subclass is 2w.

## 27B—Castile gravelly silt loam, 3 to 8 percent slopes

This soil is gently sloping, very deep, and moderately well drained. It is on outwash plains, beach ridges, and stream terraces. Individual areas are elongated or irregularly shaped. They commonly range from 5 to 50 acres in size, but some are as large as several hundred acres.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 10 inches, dark grayish brown gravelly silt loam with 30 percent gravel

#### Subsoil:

10 to 17 inches, yellowish brown friable very gravelly silt loam, with 35 percent gravel 17 to 30 inches, light olive brown friable very gravelly loam, with yellowish brown iron accumulations and gray iron depletions and 40 percent gravel

#### Substratum:

30 to 72 inches, grayish brown loose stratified very gravelly sand, with 55 percent gravel

Included in mapping are small areas of the somewhat poorly drained Red Hook soils in slight depressions and along the fringes of valleys and soils that have a sandy surface layer. Chenango soils are a common inclusion on higher rises and knolls. Olean soils are common inclusions where there is a thicker silty surface layer, especially along the edges of alluvial fans. Pawling soils are included along streams. Included areas make up about 10 to 20 percent of this unit.

#### Soil properties—

Permeability: Moderate or moderately rapid in the surface layer, moderately rapid in the subsoil, and rapid in the substratum

Available water capacity: Very low to moderate

Soil reaction: Very strongly acid to moderately acid in the surface layer and subsoil, and strongly acid to neutral in the substratum

Water table: At a depth of 1.5 to 2.0 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are used for cultivated crops. Scattered woodlots are in a few areas. This soil meets the requirements for prime farmland.

This soil is well suited to cultivated crops and to early season vegetables. Seasonal wetness in the early spring and fall may delay tillage and harvesting activities. It can be used intensively for row crops. Erosion is a hazard on long slopes if the soil is intensively cultivated and is not protected by a plant cover. Incorporating crop residue

into the soil, minimizing tillage, and growing cover crops help to maintain tilth and control erosion. Small rock fragments on the surface are a limitation. The rock fragments may interfere with the planting of some fine-seeded crops and can increase the wear on machinery. Deep-rooted perennial crops, such as alfalfa, grow especially well. Crops respond well to applications of lime and fertilizer. Minimizing tillage, growing cover crops, incorporating crop residue into the soil, and rotating crops improve tilth and help to maintain the content of organic matter. Increasing the content of organic matter improves the available water capacity of the soil.

This soil is well suited to hay and pasture. It is suitable for grazing early in the growing season. Using proper stocking rates, rotating livestock grazing, controlling weeds and brush, and applying the proper kinds and amounts of lime and fertilizer are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is moderate. The potential for seedling mortality is low. Planting seedlings in spring when the soil is moist, helps to ensure their survival.

The depth to saturated zone is the main limitation if this soil is used as a site for dwellings with basements. If suitable outlets can be found, installing drainage tile along the footings of the foundation and sealing the foundation can help overcome wetness.

Frost action and depth to saturated zone are the main limitations if this soil is used as a site for local roads and streets. Removing the mantle of silty material and backfilling with coarse textured base material reduce the potential for frost action. Installing roadside drainage systems reduces the potential for frost action and wetness.

The depth to saturated zone and poor filtering capacity are limitations if this soil is used as a site for septic tank absorption fields. Care is needed to prevent the contamination of ground water resulting from the rapid permeability in the substratum. Installing a drainage system in the area around the absorption fields may help to overcome the seasonal wetness.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

This soil is a potential source of sand and gravel.

The capability subclass is 2w.

# 28A—Scio silt loam, 0 to 3 percent slopes

This soil is nearly level, very deep and moderately well drained. It is on broad flats in the larger valleys, and lowland areas on the lake plains. Individual areas are oblong or irregularly shaped, and range from 10 to 50 acres.

The typical sequence, depth, and composition of the layers of this soil are as follows— Surface layer:

0 to 9 inches, dark grayish brown silt loam

#### Subsoil:

9 to 17 inches, yellowish brown friable silt loam

17 to 26 inches, yellowish brown friable silt loam, with strong brown iron accumulations and gray iron depletions

26 to 36 inches, dark yellowish brown friable silt loam, with yellowish brown iron accumulations and light brownish gray iron depletions

#### Substratum:

36 to 50 inches, brown friable silt loam, with light brownish gray iron depletions 50 to 72 inches, dark brown loose gravelly loamy sand, with yellowish brown iron accumulations, and 20 percent gravel

Included in mapping are small areas of the somewhat poorly drained Tonawanda soils in slight depressions and along drainageways, and small areas of the well-drained Unadilla soils on small knolls and in the slightly higher positions in the landscape. Also included are small areas of Collamer soils which have a higher content of clay in the subsoil than the Scio soil, small areas of Olean soils which are underlain with sand and gravel, and a few spots of soils that have more rock fragments in the surface layer than the Scio soil. Included areas make up make up about 10 to 20 percent of this unit.

#### Soil properties—

Permeability: Moderate in the surface layer and subsoil, and moderately rapid or rapid in the substratum

Available water capacity: High

Soil reaction: Very strongly acid or strongly acid in the surface layer (unless limed) and upper subsoil, very strongly acid to moderately acid in the lower subsoil, and strongly acid to slightly alkaline in the substratum

Water table: At a depth of 1.5 to 2.0 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are used for crops grown in support of dairy operations. Some of the acreage is idle land. Small woodlots are in some areas. This soil meets the requirements for prime farmland.

This soil is well suited to most of the crops commonly grown in the county, including vegetables and legumes. The seasonal high water table may delay tillage and planting in spring. Draining the wetter included soils allows for more efficient management of the fields. This gravel-free soil can be easily tilled and is well suited to specialty crops. Row crops can be grown repeatedly if tilth and the content of organic matter are maintained by such measures as incorporating crop residue into the soil, plowing only when the soil is at the proper moisture content, growing cover crops and rotating crops.

This soil is well suited to pasture. Overgrazing and grazing when the soil is wet are the main concerns in managing pasture. Overgrazing can damage pasture plants, and grazing when the soil is wet can compact the surface layer and seal the surface. Using proper stocking rates, rotating livestock grazing, deferring grazing when the soil is wet, controlling weeds and brush, and applying the proper kinds and amounts of lime and fertilizer are the main management concerns.

The potential productivity of this soil for sugar maple is moderately high. The hazard of off-road or off-trail erosion and the hazard of erosion on roads and trails is slight. The potential for seedling mortality is low. Planting seedlings in spring when the soil is moist, helps to ensure their survival.

The seasonal wetness is the main limitation if this soil is used as a site for dwellings with basements. Where outlets are available, installing drains around footings and sealing foundations and basement walls help to prevent excessive wetness in basements.

The seasonal wetness and frost action are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems help to overcome these limitations.

The depth to saturated zone and poor filtering capacity are limitations if this soil is used as a site for tank absorption fields, particularly in early spring. Care is needed to prevent the contamination of ground water resulting from rapid permeability in the substratum. Installing a drainage system in the area around the absorption field may help to overcome the seasonal wetness. Sloughing and the caving in of the unstable silty material are limitations affecting excavations.

The capability subclass is 2w.

# 29A—Chenango fine gravelly sandy loam, 0 to 3 percent slopes

This soil is nearly level, very deep, and well drained. It is on outwash plains, beach ridges, and stream terraces. Individual areas are elongated or irregularly shaped. They commonly range from 5 to 75 acres in size, but some are as large as several hundred acres.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface laver:

0 to 9 inches, brown fine gravelly sandy loam with 20 percent gravel

Subsoil:

9 to 25 inches, yellowish brown very friable fine gravelly sandy loam, with 30 percent fine gravel

25 to 30 inches, yellowish brown friable very fine gravelly loam, with 45 percent gravel *Substratum:* 

30 to 72 inches, brown friable very gravelly loamy sand, with 55 percent gravel

Included in mapping are small areas of the moderately well drained Castile soils in slight depressions and along the fringes of valleys, and soils that have a silt loam surface texture. Also included are small areas of sandy Colonie soils, and silty well drained soils in areas where the Chenango soil adjoins Allard soils. Included areas make up about 10 to 20 percent of this unit.

#### Soil properties—

Permeability: Moderate or moderately rapid in the surface layer and subsoil, and rapid in the substratum

Available water capacity: Very low to moderate

Soil reaction: Very strongly acid to moderately acid in the surface layer and subsoil, and strongly acid to slightly alkaline in the substratum

Water table: At a depth of more than 6 feet

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are used for cultivated crops. Scattered woodlots are in a few areas. This soil meets the requirements for prime farmland.

This soil is well suited to cultivated crops and to early season vegetables (fig. 6). It can be cultivated early in spring and can be used intensively for row crops. Droughtiness and small rock fragments on the surface are the main limitations. The rock fragments may interfere with the planting of some fine-seeded crops and can increase the wear on machinery. Deep-rooted perennial crops, such as alfalfa, grow especially well. Crops respond well to applications of lime and fertilizer. Minimizing tillage, growing cover crops, incorporating crop residue into the soil, and rotating crops improve tilth and help to maintain the content of organic matter. Increasing the content of organic matter improves the available water capacity of the soil.

This soil is well suited to hay and pasture. It is suitable for grazing early in the growing season. Plant growth may be limited in midsummer. As a result, care is needed to prevent overgrazing during this period. Using proper stocking rates, rotating livestock grazing, controlling weeds and brush, and applying the proper kinds and amounts of lime and fertilizer are the main management concerns.

The potential productivity of this soil for sugar maple is moderately high. The hazard of off-road or off-trail erosion and erosion on roads and trails is slight. The potential for seedling mortality is low.



Figure 6.—Nursery stock in an area of Chenango fine gravelly sandy loam, 0 to 3 percent slopes. The production of specialty horticultural crops is a growing industry on this soil.

Planting seedlings early in spring, when the soil is moist, helps to ensure their survival.

This soil has few limitations as a site for dwellings with basements.

Frost action is the main limitation if this soil is used as a site for local roads and streets. Backfilling with coarse textured base material reduce the potential for frost action.

The poor filtering capacity is the main limitation for septic tank absorption fields. Care is needed to prevent the contamination of ground water resulting from the rapid permeability of the substratum.

This soil is a potential source of sand and gravel.

The capability class is 2s.

# 29B—Chenango fine gravelly sandy loam, 3 to 8 percent slopes

This soil is gently sloping, very deep, and well drained. It is on outwash plains, beach ridges, and stream terraces. Individual areas are elongated or irregularly shaped. They commonly range from 5 to 50 acres in size, but some are as large as several hundred acres.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 9 inches, brown fine gravelly sandy loam with 20 percent gravel

Subsoil

9 to 25 inches, yellowish brown very friable fine gravelly sandy loam, with 30 percent fine gravel

25 to 30 inches, yellowish brown friable very gravelly loam, with 45 percent fine gravel *Substratum:* 

30 to 72 inches, brown friable very gravelly loamy sand, with 55 percent gravel

Included in mapping are small areas of the moderately well drained Castile soils in slight depressions and along the fringes of valleys, and soils that have a silt loam surface texture. Also included are small areas of sandy Colonie soils and silty well drained soils in areas where the Chenango soil adjoins Allard soils. Included areas make up about 10 to 20 percent of this unit.

#### Soil properties—

Permeability: Moderate or moderately rapid in the surface layer and subsoil, and rapid in the substratum

Available water capacity: Very low to moderate

Soil reaction: Very strongly acid to moderately acid in the surface layer and subsoil, and strongly acid to slightly alkaline in the substratum

Water table: At a depth of more than 6 feet

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are used for cultivated crops. Scattered woodlots are in a few areas. This soil meets the requirements for prime farmland.

This soil is well suited to cultivated crops and to early season vegetables. It can be cultivated early in spring and can be used intensively for row crops. Droughtiness and small rock fragments on the surface are the main limitations. The rock fragments may interfere with the planting of some fine-seeded crops and can increase the wear on machinery. Deep-rooted perennial crops, such as alfalfa, grow especially well. Crops respond well to applications of lime and fertilizer. Erosion is a hazard on long slopes if the soil is intensively cultivated and is not protected by a plant cover. Incorporating crop residue into the soil, minimizing tillage, and growing cover crops help to maintain tilth and control erosion. Farming on the contour and stripcropping help to control erosion and conserve water during the growing season.

This soil is well suited to hay and pasture. It is especially suitable for grazing early in the growing season. Plant growth may be limited in midsummer. As a result, care is needed to prevent overgrazing during this period. Using proper stocking rates, rotating livestock grazing, controlling weeds and brush, and applying the proper kinds and amounts of lime and fertilizer are the main management concerns.

The potential productivity of this soil for sugar maple is moderately high. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is moderate. Building skid trails and roads across the slope minimizes gullying along the trails and roads. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival.

This soil has few limitations as a site for dwellings with basements.

Frost action is the main limitation if this soil is used as a site for local roads and streets. Removing the surface layer and backfilling with coarse textured base material reduce the potential for frost action.

The poor filtering capacity is the main limitation if this soil is used as a site for septic tank absorption fields. Care is needed to prevent the contamination of ground water resulting from the rapid permeability in the substratum.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

This soil is a potential source of sand and gravel.

The capability class is 2s.

# 29C—Chenango fine gravelly sandy loam, 8 to 15 percent slopes

This soil is strongly sloping, very deep, and well drained. It is on rolling outwash plains, beach ridges, and stream terraces. Individual areas are oblong, and range from 10 to 50 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 9 inches, brown fine gravelly sandy loam with 20 percent gravel

Subsoil

9 to 25 inches, yellowish brown very friable fine gravelly sandy loam, with 30 percent fine gravel

25 to 30 inches, yellowish brown friable very gravelly loam, with 45 percent fine gravel *Substratum:* 

30 to 72 inches, brown friable very gravelly loamy sand, with 55 percent gravel

Included in mapping are small areas of the moderately well drained Castile soils in slight depressions and along the fringes of valleys, and soils that have a silt loam surface texture. Also included are small areas of sandy Colonie soils and silty well drained soils in areas where the Chenango soil adjoins Allard soils. Included areas make up about 10 to 20 percent of this unit.

#### Soil properties—

Permeability: Moderate or moderately rapid in the surface layer and subsoil, and rapid in the substratum

Available water capacity: Very low to moderate

Soil reaction: Very strongly acid to moderately acid in the surface layer and subsoil, and strongly acid to slightly alkaline in the substratum

Water table: At a depth of more than 6 feet

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are used for hay or for row crops grown in support of dairy farming. Scattered woodlots are in some areas, and some of the acreage is idle land.

This soil is moderately well suited to most of the crops commonly grown in the county. The crops that are planted early in spring and deep-rooted perennial crops, such as alfalfa, grow especially well. The slope, erosion, droughtiness, and gravel on the surface are the main limitations. The gravel may interfere with the planting of some crops and cause excessive wear on machinery. Erosion is a serious hazard on long slopes and in intensively cultivated areas. Farming on the contour, stripcropping, and establishing grassed waterways help to control erosion. Incorporating crop residue into the soil, minimizing tillage, growing cover crops, and including sod crops in the cropping sequence help to maintain tilth and reduce the hazard of erosion. These practices also increase the content of organic matter and thus improve the available water capacity of the soil. Crops respond well to applications of lime and fertilizer. Legumes respond especially well. In some years droughtiness restricts crop growth.

This soil is well suited to hay and pasture. It is especially suitable for grazing early in the growing season. Overgrazing can restrict plant growth, especially during dry periods, and can increase the hazard of erosion. Using proper stocking rates, rotating livestock grazing, and controlling weeds and brush by mowing annually are important management concerns.

The potential productivity of this soil for sugar maple is moderately high. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is moderate. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building skid trails and roads across the slope minimizes gullying along the trails and roads.

The slope is the main limitation if this soil is used as a site for dwellings with basements. Land grading and shaping help to overcome this limitation.

Frost action and slope are the main limitations if this soil is used as a site for local roads and streets. Land grading and building on the contour help to overcome the slope limitation. Installing roadside drainage systems reduces the potential for frost action.

The poor filtering capacity is the main limitation for septic tank absorption fields. Care is needed to prevent the contamination of groundwater resulting from the rapid permeability in the substratum.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

This soil is a potential source of sand and gravel.

The capability subclass is 3e.

# 29D—Chenango fine gravelly sandy loam, 15 to 25 percent slopes

This soil is moderately steep, very deep, and well drained. It is on hilly outwash plains, on terrace risers, and on dissected deltas. Individual areas are irregular in shape and range from 5 to 30 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 9 inches, brown fine gravelly sandy loam with 20 percent gravel

Subsoil:

9 to 25 inches, yellowish brown very friable fine gravelly sandy loam, with 30 percent fine gravel

25 to 30 inches, yellowish brown friable very gravelly loam, with 45 percent fine gravel

Substratum:

30 to 72 inches, brown friable very gravelly loamy sand, with 55 percent gravel

Included in mapping are small areas of the moderately well drained Castile soils in slight depressions and along the fringes of valleys, soils that have a silt loam surface texture, small areas of sandy Colonie soils, silty well drained Allard soils, and small areas of the less sloping Chenango soils. Valois soils are in areas where the Chenango soil adjoins areas of glacial till. Included soils make up about 10 to 20 percent of this unit.

#### Soil properties—

Permeability: Moderate or moderately rapid in the surface layer and subsoil, and rapid in the substratum

Available water capacity: Very low to moderate

Soil reaction: Very strongly acid to moderately acid in the surface layer and subsoil, and strongly acid to slightly alkaline in the substratum

Water table: At a depth of more than 6 feet

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most of the acreage is woodland or is idle land that is reverting to brush and shrubs. Some areas are used for hay, pasture, or row crops.

This soil is poorly suited to cultivated crops. The slope, the hazard of erosion, and droughtiness are the main management concerns. Operating farm equipment is difficult and hazardous because of the slope. Erosion is a serious hazard in cultivated areas. Cultivated crops should be grown only occasionally, and the maximum number of conservation practices should be used. Minimizing tillage, growing cover crops, incorporating crop residue into the soil, tilling across the slope, stripcropping, and including sod crops in the cropping system help to maintain good tilth, increase the content of organic matter, and minimize erosion. Sufficient applications of lime and fertilizer are needed to maintain crop growth. In some years droughtiness restricts crop growth.

This soil is well suited to hay and pasture. It is especially suitable for grazing early in the growing season. Overgrazing can restrict plant growth, and can increase the hazard of erosion. Deep-rooted legumes can be grown, but applications of lime and fertilizer are required to maintain the quality of the stands and to ensure good plant growth. If plowing is necessary to establish a plant cover, plowing across the slope and leaving strips of sod help to control runoff. Using proper stocking rates, rotating livestock grazing, and controlling weeds and brush by mowing annually are important management concerns.

The potential productivity of this soil for sugar maple is moderately high. The hazard of off-road or off-trail erosion is moderate and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building skid trails and roads across the slope minimizes gullying along the trails and roads.

The slope is the main limitation if this soil is used as a site for dwellings with basements. Land grading and shaping help to overcome this limitation. Designing the dwellings so that they conform to the natural slope of the land reduces the amount of grading required.

The slope and frost action are the main limitations if this soil is used as a site for local roads and streets. Land grading and building on the contour help to overcome the slope limitation. Installing roadside drainage systems reduces the potential for frost action.

The poor filtering capacity and slope are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Extensive land modification is needed to overcome the slope limitations. Care is needed to prevent the contamination of ground water resulting from rapid permeability in the substratum.

Erosion is a serious hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 4e.

# 29E—Chenango fine gravelly sandy loam, 25 to 35 percent slopes

This soil is steep, very deep, and well drained. It is on terrace risers, the sides of ridges, and on the side slopes of dissected outwash plains. Individual areas are oblong or occur as narrow strips on the side slopes. They range from 10 to 50 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 9 inches, brown fine gravelly sandy loam with 20 percent gravel

Subsoil:

9 to 25 inches, yellowish brown very friable fine gravelly sandy loam, with 30 percent fine gravel

25 to 30 inches, yellowish brown friable very gravelly loam, with 45 percent fine gravel Substratum:

30 to 72 inches, brown friable very gravelly loamy sand, with 55 percent gravel

Included in mapping are small areas of the moderately well drained Castile soils in slight depressions and along the fringes of valleys, soils that have a silt loam surface texture, small areas of sandy Colonie soils, silty well drained Allard soils and small areas of the less sloping Chenango soils. Valois soils are in areas where the Chenango soil adjoins areas of glacial till. Included soils make up about 10 to 20 percent of this unit.

#### Soil properties—

Permeability: Moderate or moderately rapid in the surface layer and subsoil, and rapid in the substratum

Available water capacity: Very low to moderate

Soil reaction: Very strongly acid to moderately acid in the surface layer and subsoil, and strongly acid to slightly alkaline in the substratum

Water table: At a depth of more than 6 feet

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are used as woodland and wildlife habitat. Some of the acreage is idle land or is used as pasture.

This soil is not suited to cultivated crops or hay fields because of the slope and the severe hazard of erosion. Operating farm equipment is difficult and hazardous because of the slope. A plant cover is needed to control runoff.

This soil is poorly suited for pasture. A good plant cover is needed. Prevention of overgrazing helps to protect the soil from erosion and gullying. Sufficient applications of lime and fertilizer are needed to improve native pastures.

The potential productivity of this soil for sugar maple is moderately high. The hazard of off-road or off-trail erosion is moderate and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building skid trails and roads across the slope minimizes gullying along the trails and roads.

The slope is the main limitation if this soil is used as a site for dwellings with basements. Land grading and shaping help to overcome this limitation. Designing the dwellings so that they conform to the natural slope of the land reduces the amount of grading required.

The slope and frost action are the main limitations if this soil is used as a site for local roads and streets. Land grading and building on the contour help to overcome the slope limitation. Installing roadside drainage systems reduces the potential for frost action.

The poor filtering capacity and slope are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Extensive land modification is needed to overcome the slope limitations. Care is needed to prevent the contamination of ground water resulting from the rapid permeability in the substratum.

Erosion is a serious hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 6e.

## 31B—Collamer silt loam, 3 to 8 percent slopes

This soil is gently sloping, very deep and moderately well drained. It is on higher knolls and convex shoulders of drainageways on lowland lake plains. Individual areas are oblong or round, and range from 5 to 30 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 6 inches, dark grayish brown silt loam

Subsurface layer:

6 to 18 inches, pale brown friable silt loam

Subsoil:

18 to 24 inches, brown friable silt loam

24 to 31 inches, brown firm silty clay loam, with yellowish brown iron accumulation and grayish brown iron depletions

31 to 45 inches, brown firm silty clay loam, with yellowish brown iron accumulation and grayish brown iron depletions

Substratum:

45 to 72 inches, brown firm silt loam

Included in mapping are small areas of the somewhat poorly drained Niagara soils along drainageways, poorly drained Canandaigua soils in slight depressions, and the well drained Dunkirk soils on the higher knolls. Also included are small areas of silty Scio soils which contain less clay than the Collamer soils. Included areas make up about 10 to 20 percent of the unit.

#### Soil properties—

Permeability: Moderate in the surface layer and upper subsoil, and slow or moderately slow in the lower subsoil and substratum

Available water capacity: High

Soil reaction: Strongly acid to neutral in the surface layer and upper subsoil, moderately acid to slightly alkaline in the lower subsoil, and slightly acid to moderately alkaline in the substratum

Water table: At a depth of 1.5 to 2.0 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are used for crops that commonly are grown in support of dairy farming, such as corn, oats, and alfalfa. Small, scattered woodlots are in some areas, and some of the acreage is used for hay and pasture or is idle land. This soil meets the requirements for prime farmland.

This soil is well suited to most of the crops commonly grown in the county. It is especially well suited to vegetables, but planting may be delayed because of the seasonal wetness. Draining wet spots permits earlier tillage of many fields. The soil commonly has no rock fragments, and can be easily tilled. It is highly erodible in cultivated areas, especially where slopes are long. Measures that minimize surface crusting and compaction, and reduce the hazard of erosion are needed. Growing cover crops, incorporating crop residue into the soil, and tilling only when the soil is at the proper moisture content help to maintain tilth and increase the content of organic matter. Farming on the contour, minimizing tillage, stripcropping, and maintaining year-round plant cover help to control erosion.

This soil is well suited to pasture. Prevention of overgrazing and restricted grazing when the soil is wet are the main concerns in managing pasture. Overgrazing

damages pasture and results in erosion. Grazing when the soil is wet seals the surface and compacts the soil. Using proper stocking rates, rotating livestock grazing, and controlling weeds by mowing annually are the main management concerns.

The potential productivity of this soil for sugar maple is moderately high. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is moderate. The potential for seedling mortality is low. Planting seedlings in spring when the soil is moist, helps to ensure their survival.

The depth to saturated zone is the main limitation if this soil is used as a site for dwellings with basements. Where outlets are available, installing drains around footings reduces wetness. Also, sealing foundations and basement walls helps to prevent excessive wetness in basements.

Frost action and the depth to saturated zone are the main limitations if this soil is used as a site for local roads and streets. Adding of coarse textured subgrade or base material increases soil strength and reduces the potential for frost action. Installing roadside drainage systems and building on raised fill material help to overcome the wetness and reduce the potential for frost heaving.

The depth to saturated zone and restricted permeability in the subsoil are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system in the area around the absorption fields reduces the seasonal wetness. Adding permeable fill material helps overcome the slow permeability.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 2e.

## 31C—Collamer silt loam, 8 to 15 percent slopes

This soil is strongly sloping, very deep and moderately well drained. It is on ridges and the side slopes along drainageways on lowland lake plains. Individual areas are oblong and range from 5 to 30 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 6 inches, dark grayish brown silt loam

Subsurface layer:

6 to 18 inches, pale brown friable silt loam

Subsoil:

18 to 24 inches, brown friable silt loam

24 to 31 inches, brown firm silty clay loam, with yellowish brown iron accumulation and grayish brown iron depletions

31 to 45 inches, brown firm silty clay loam, with yellowish brown iron accumulations and grayish brown iron depletions

Substratum:

45 to 72 inches, brown firm silt loam

Included in mapping are small areas of the somewhat poorly drained Niagara soils along drainageways, poorly drained Canandaigua soils in slight depressions, and the well drained Dunkirk soils on the higher knolls. Also included are small areas of silty Scio soils which contain less clay than the Collamer soils. Included soils make up about 10 to 20 percent of the unit.

#### Soil properties—

Permeability: Moderate in the surface layer and upper subsoil, and slow or moderately slow in the lower subsoil and substratum

Available water capacity: High

Soil reaction: Strongly acid to neutral in the surface layer and upper subsoil, moderately acid to slightly alkaline in the lower subsoil, and slightly acid to moderately alkaline in the substratum

Water table: At a depth of 1.5 to 2.0 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Many areas are used as hayland, pasture, or woodland. Some of the acreage is used for cultivated crops grown in support of dairy farming or is idle land.

This soil is moderately well suited to most of the crops commonly grown in the county. Erosion is a hazard where cultivated crops are grown. Planting may be delayed by wetness in spring. Draining wet spots permits earlier tillage of many fields. The soil commonly has no rock fragments and can be easily tilled. It is highly erodible in cultivated areas, especially where slopes are long. Measures that minimize surface crusting and compaction, and reduce the hazard of erosion are needed. Growing cover crops, incorporating crop residue into the soil, and tilling only when the soil is at the proper moisture content help to maintain tilth and increase the content of organic matter. Farming on the contour, minimizing tillage, stripcropping, and maintaining year-round plant cover help to control erosion.

This soil is well suited to pasture. Prevention of overgrazing and restricted grazing when the soil is wet are the main concerns in managing pasture. Overgrazing damages pasture and results in erosion. Grazing when the soil is wet seals the surface and compacts the soil. Using proper stocking rates, rotating livestock grazing, and controlling weeds by mowing annually are the main management concerns.

The potential productivity of this soil for sugar maple is moderately high. The hazard of off-road or off-trail erosion is moderate and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings in spring when the soil is moist, helps to ensure their survival. Building skid trails and roads across the slope minimizes gullying along the trails and roads.

The depth to saturated zone and slope are the main limitations if this soil is used as a site for dwellings with basements. Installing drains around footings, sealing foundations and basement walls helps to prevent excessive wetness in basements. Land grading and building on the contour help to overcome the slope limitation.

The depth to saturated zone, frost action and slope are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material increases soil strength and reduces the potential for frost action. Installing roadside drainage systems and building on raised fill material help to overcome the wetness and reduce the potential for frost heaving. Land grading and building on the contour help to overcome the slope limitation.

The depth to saturated zone and restricted permeability in the subsoil and substratum are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system in the area around the absorption fields reduces the seasonal wetness. Adding permeable fill material helps overcome the slow permeability.

Erosion is a serious hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 3e.

### 32A—Churchville silt loam, 0 to 3 percent slopes

This soil is nearly level, very deep, and somewhat poorly drained. It is on broad flats, on lowland till plains and on lower slopes of valleys that receive runoff from higher adjacent soils. Individual areas are oblong or irregularly shaped, and range from 5 to 75 acres in size. Slopes are smooth.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 8 inches, very dark grayish brown silt loam with 5 percent gravel

#### Subsurface layer:

8 to 14 inches, grayish brown friable silt loam, with yellowish brown iron accumulations and light brownish gray iron depletions and less than 2 percent gravel

#### Subsoil:

- 14 to 22 inches, yellowish brown firm silty clay loam, with strong brown iron accumulations and light gray iron depletions
- 22 to 37 inches, brown firm silty clay loam, with yellowish brown iron accumulations and light gray iron depletions and less than 2 percent gravel

#### Substratum:

- 37 to 55 inches, brown firm gravelly silt loam, with yellowish brown iron accumulations and light gray iron depletions and 15 percent gravel
- 55 to 72 inches, brown firm gravelly silt loam, with yellowish brown iron accumulations and light gray iron depletions and 25 percent gravel

Included in mapping are small areas of poorly drained soils along drainageways; the somewhat poorly drained Darien soils, which do not have a clayey mantle; and the somewhat poorly drained Rhinebeck soils, which formed in clayey deposits thicker than those of the Churchville soil. Also included on lake plains, are areas of poorly drained Canandaigua soils that are silty throughout the profile. Included soils make up about 10 to 20 percent of this unit.

#### Soil properties—

Permeability: Moderate in the surface layer and subsurface layer, and slow or very slow in the subsoil and substratum

Available water capacity: High

Soil reaction: Moderately acid to neutral in the surface layer and subsurface layer, slightly acid to slightly alkaline in the subsoil, and slightly alkaline or moderately alkaline in the substratum

Water table: At a depth of 0.5 to 1.5 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most of the acreage is used for hay or pasture or is idle land. Areas on lake plains are used for vegetables or vineyards. A small acreage is wooded. Where drained, this unit meets the requirements for prime farmland.

This soil is moderately well suited to cultivated crops, but the seasonal wetness delays planting in spring and makes harvesting difficult in fall. Crops in slightly depressional areas are damaged during prolonged wet periods. The soil is subject to puddling and compaction if it is tilled when wet. If the soil is drained, this map unit is suited to many of the crops commonly grown in the county. Tile drains generally should be closely spaced because of the slowly permeable, clayey subsoil. Tilling only when the soil is the proper moisture content minimizes the crusting and clodding. Growing cover crops, incorporating crop residue into the soil, and including sod crops

in the cropping system help to maintain good tilth, increase the content of organic matter, and minimize crusting and clodding.

This soil is well suited to water-tolerant hay species and to grazing late in spring. Grazing when the soil is wet is the main management concern. It results in surface compaction, restricts plant growth, damages pasture grasses, and increases the hazard of erosion. Using proper stocking rates, rotating livestock grazing, restricting grazing when the soil is wet, and controlling brush and weeds by mowing annually are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion and erosion on roads and trails is slight. The potential for seedling mortality is high. The seasonal wetness increases the seedling mortality rate. Tree species that can withstand the seasonal wetness grow best.

The depth to saturated zone is the main limitations if this soil is used as a site for dwellings with basements. Where outlets are available, installing drains around footings reduces the wetness. Also, sealing foundations and basement walls helps to prevent excessive wetness in basements.

The depth to saturated zone, frost action, and shrink-swell potential are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material reduces the shrink-swell potential and frost action. Installing roadside drainage systems and building on raised fill material helps to overcome the wetness and reduce the potential for frost heaving.

The depth to saturated zone and the restricted permeability in the subsoil and substratum are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system in the area around the absorption field reduces the seasonal wetness, and adding permeable fill material helps to overcome the slow permeability.

Recompacting the soil when it is disturbed is often difficult because of the clay content.

The capability subclass is 3w.

## 32B—Churchville silt loam, 3 to 8 percent slopes

This soil is gently sloping, very deep, and somewhat poorly drained. It is on the lower side slopes of valleys that receive runoff from the higher adjacent soils. Individual areas are oblong or irregularly shaped. They range from 5 to 40 acres in size, but some are as large as 200 acres.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 8 inches, very dark grayish brown silt loam with 5 percent gravel

Subsurface layer:

8 to 14 inches, grayish brown friable silt loam, with yellowish brown iron accumulations and light brownish gray iron depletions and less than 2 percent gravel

Subsoil:

- 14 to 22 inches, yellowish brown firm silty clay loam, with strong brown iron accumulations and light gray iron depletions
- 22 to 37 inches, brown firm silty clay loam, with yellowish brown iron accumulations and light gray iron depletions and less than 2 percent gravel

Substratum:

37 to 55 inches, brown firm gravelly silt loam, with yellowish brown iron accumulations and light gray iron depletions and 15 percent gravel

55 to 72 inches, brown firm gravelly silt loam, with yellowish brown iron accumulations and light gray iron depletions and 25 percent gravel

Included in mapping are small areas of poorly drained soils along drainageways; the somewhat poorly drained Darien soils, which do not have a clayey mantle; and the somewhat poorly drained Rhinebeck soils, which formed in clayey deposits thicker than those of the Churchville soil. Also included on lake plains, are areas of poorly drained Canandaigua soils that are silty throughout the profile. Included soils make up about 10 to 20 percent of this unit.

#### Soil properties—

Permeability: Moderate in the surface layer and subsurface layer and slow or very slow in the subsoil and substratum

Available water capacity: High

Soil reaction: Moderately acid to neutral in the surface layer and subsurface layer, slightly acid to slightly alkaline in the subsoil, and slightly alkaline or moderately alkaline in the substratum

Water table: At a depth of 0.5 to 1.5 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most of the acreage is hayland, pasture, woodland or idle land. Some areas are used for cultivated crops. Areas on lake plains are used for vegetables or vineyards. Where drained, this unit meets the requirements for prime farmland.

This soil is moderately well suited to cultivated crops. The seasonal wetness delays planting in spring and makes harvesting difficult in fall. Erosion is a hazard in some intensively cultivated areas where slopes are long. Interceptor drains can divert runoff and subsurface seepage from the higher adjacent soils, and thus reduce the hazard of erosion. Tile drains generally should be closely spaced because of the slowly permeable, clayey subsoil. Tilling only when the soil is at the proper moisture content minimizes the surface crusting and clodding. Growing cover crops, incorporating crop residue into the soil, and including sod crops in the cropping system help to maintain good tilth, increase the content of organic matter, and minimize crusting and clodding. These practices, along with farming on the contour and stripcropping, also reduce the hazard of erosion.

This soil is well suited to water-tolerant hay species and to grazing late in spring. Grazing when the soil is wet is the main management concern. It results in surface compaction, restricts plant growth, damages pasture grasses, and increases the hazard of erosion. Using proper stocking rates, rotating livestock grazing, deferring grazing when the soil is wet, and controlling brush and weeds by mowing annually are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is moderate. The potential for seedling mortality is high. The seasonal wetness increases the seedling mortality rate. Tree species that can withstand the seasonal wetness grow best.

The depth to saturated zone is the main limitations if this soil is used as a site for dwellings with basements. Where outlets are available, installing drains around footings reduces the wetness. Also, sealing foundations and basement walls helps to prevent excessive wetness in basements.

The depth to saturated zone, frost action and shrink-swell potential are the main limitations on sites for local roads and streets. Adding coarse textured subgrade or base material reduces the shrink-swell potential and frost action. Installing roadside drainage systems and building on raised fill material helps to overcome the wetness and reduce the potential for frost heaving.

The depth to saturated zone and the restricted permeability in the subsoil and substratum are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system in the area around the absorption field reduces the seasonal wetness, and adding permeable fill material helps to overcome the slow permeability.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

Recompacting this soil after it has been disturbed commonly is difficult because of the content of clay.

The capability subclass is 3w.

## 33A—Wallington silt loam, 0 to 3 percent slopes

This soil is nearly level very deep, and somewhat poorly drained. It is mainly in low areas on lake plains and to a lesser extent on broad flats in the larger valleys. Individual areas are oblong or irregularly shaped. They range from 10 to 75 acres in size, but some are as large as 100 acres or more.

The typical sequence, depth, and composition of the layers of this soil are as follows— Surface layer:

0 to 8 inches, very dark grayish brown silt loam

#### Subsurface layer:

8 to 14 inches, light brownish gray friable silt loam, with strong brown iron accumulations

#### Subsoil:

14 to 23 inches, brown firm silt loam, with strong brown iron accumulations and light brownish gray iron depletions

23 to 38 inches, dark brown very firm silt loam, with yellowish brown iron accumulations and gray iron depletions

#### Substratum:

38 to 72 inches, brown firm silt loam, with gray iron depletions and 5 percent channers

Included in mapping are small areas of poorly drained soils in slight depressions and along drainageways; moderately well drained Williamson soils on higher rises and knolls; somewhat poorly drained Tonawanda soils, and poorly drained silty Canandaigua soils where the fragipan is absent. Also included are small areas of Wallington soils that have a gravelly substratum. Included areas make up about 10 to 20 percent of this unit.

#### Soil properties—

Permeability: Moderate in the surface and subsurface and slow in the fragipan and substratum

Available water capacity: Very low or Low

Soil reaction: Very strongly acid to moderately acid in the surface and subsurface layer, very strongly acid to neutral in the fragipan, and moderately acid to neutral in the substratum

Water table: At a depth of 0.5 to 1.5 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are used for row crops or hay grown in support of dairy farming, are idle land, or are woodland. Where drained, this soil meets the requirements for prime farmland.

This soil is moderately well suited to cultivated crops and vegetables. The seasonal high water table may delay planting and can make harvesting difficult, especially in low areas. If a drainage system is installed, the soil is suited to the crops commonly grown in the county. A combination of open ditches and subsurface drains generally is effective in areas where outlets are available. Tile drains should be closely spaced because of the slow permeability in the fragipan and substratum. The soil is subject to puddling and compaction if it is tilled when wet. Growing cover crops, minimizing tillage, incorporating crop residue into the soil, and including sod crops in the cropping system help to maintain tilth, increase the content of organic matter and minimize crusting and clodding.

This soil is suited to water-tolerant hay and to late-spring pasture. Overgrazing and grazing when the soil is wet are the main management concerns. Overgrazing damages pasture plants, and grazing when the soil is wet can result in surface compaction and damage to the pasture. Using proper stocking rates, rotating livestock grazing, controlling weeds and brush, and restricting grazing when the soil is wet are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion and the hazard of erosion on roads and trails are slight. The potential for seedling mortality is high. The seasonal wetness increases the seedling mortality rate. Tree species that can withstand the seasonal wetness grow best.

The depth to saturated zone is the main limitation if this soil is used as a site for dwellings with basements. Where outlets are available, installing drains around footings and sealing foundations and basement walls help to overcome these limitations.

The depth to saturated zone and frost action are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems help to overcome these limitations.

The depth to saturated zone, depth to dense material, and restricted permeability are limitations on sites for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system in the area around the absorption fields reduces the seasonal wetness, and adding permeable fill material helps to overcome the slow permeability.

The capability subclass is 3w.

#### 34—Getzville silt loam

This soil is very deep, nearly level, and poorly drained. It is mainly on the lowland plains in the major valleys. Individual areas are oblong. Areas range from 10 to 50 acres in size, but some are as large as 100 acres or more. Slopes generally are smooth and are less than 3 percent.

The typical sequence, depth, and composition of the layers of this soil are as follows— Surface layer:

0 to 9 inches, very dark gray silt loam

Subsoil:

- 9 to 16 inches, light brownish gray friable silt loam, with yellowish brown, yellowish red and reddish brown iron accumulations
- 16 to 24 inches, light brownish gray friable silty clay loam, with yellowish brown and reddish brown iron accumulations

Substratum:

24 to 50 inches, gray loose fine sand

50 to 72 inches, gray loose fine and medium sands

Included in mapping are small areas of the somewhat poorly drained Swormville soils on the slightly higher benches and small areas of the somewhat poorly drained Tonawanda soils and poorly drained Canandaigua soils, which are silty throughout. Also included are small areas of Lamson soils, which are sandy throughout, and a few areas having a mucky surface texture. Included areas make up about 15 to 25 percent of the unit.

#### Soil properties—

Permeability: Moderate or moderately slow in the surface layer and subsoil,

moderately rapid in the substratum

Available water capacity: Moderate to high

Soil reaction: Strongly acid to neutral in the surface layer, moderately acid to neutral in the subsoil, and neutral to slightly alkaline in the substratum

Water table: At the surface or within 0.5 feet of the surface from November through June

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most of the acreage is idle land that supports water-tolerant grasses, brush and trees. Some areas are used as pasture, and a few areas have been drained and are cultivated. This soil meets the requirements for hydric soils.

This soil is poorly suited for cultivated crops because of prolonged wetness. If drained, this soil is suited to many crops. Draining the soil may be difficult because of its low position in the landscape. Generally, some combination of open ditches and subsurface drains is desirable. Because of the sandy substratum, drains do not have to be closely spaced. Tilth and soil structure deteriorate if the soil is plowed when wet. Growing cover crops, incorporating crop residue into the soil, tilling only when the soil is at the proper moisture content, and including sod crops in the cropping system help to maintain tilth and increase the content of organic matter.

This soil is marginally suited to pasture. Grazing when the soil is wet can result in surface compaction, puddling and damage to the pasture. Using proper stocking rates, rotating livestock grazing, controlling weeds and brush by mowing annually and restricting grazing when the soil is wet are the main management concerns.

The potential productivity of this soil for red maple is moderate. The hazard of off-road or off-trail erosion and the hazard of erosion on roads and trails is slight. The potential for seedling mortality is high. The seasonal wetness increases the seedling mortality rate. Tree species that can withstand the seasonal wetness grow best.

Depth to saturated zone is the main management concern on sites for dwellings with basements. This soil is too wet for the construction of dwellings with basements without major modifications. Included areas of the somewhat poorly drained Tonawanda soils are better sites for these dwellings. Building on raised fill material helps to overcome the wetness.

Depth to saturated zone and frost action are the main limitations on sites for local roads and streets. Building on raised fill material, adding coarse textured subgrade or base material and installing roadside drainage systems help to overcome these limitations.

The depth to saturated zone and restricted permeability are management concerns if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Adjacent areas that are more suitable should be considered for locating septic tank absorption fields.

This soil is suited to wetland wildlife habitat and to the development of recreational ponds.

The capability subclass is 4w.

## 35A—Rhinebeck silt loam, 0 to 3 percent slopes

This soil is nearly level very deep, and somewhat poorly drained. It is formed in clayey lacustrine sediments on glacial lake plains. Individual areas are oblong and range from 10 to 75 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 9 inches, very dark grayish brown silt loam

Subsoil:

9 to 13 inches, dark yellowish brown friable silty clay loam, with yellowish brown iron accumulations and gray iron depletions

13 to 20 inches, dark yellowish brown firm silty clay, with yellowish brown iron accumulations and gray iron depletions

20 to 38 inches, brown firm silty clay, with yellowish brown iron accumulations and gray iron depletions

Substratum:

38 to 72 inches, grayish brown firm silty clay loam with gray lenses of silt loam, with brown iron accumulations and gray iron depletions

Included in mapping are small areas of the poorly drained Canadice soils in slight depressions and along drainageways, poorly drained Canandaigua soils which have less clay in the subsoil than the Rhinebeck soil, and the moderately well drained Collamer soils on small knolls and slight rises. Also included are small areas of Churchville soils which have glacial till within a depth of 40 inches, and somewhat poorly drained Niagara soils which have less clay in the subsoil than Rhinebeck soils. Included areas make up about 15 to 25 percent of this unit.

#### Soil properties—

Permeability: Moderately slow or moderate in the surface layer and slow in the subsoil and substratum

Available water capacity: Moderate to high

Soil reaction: Strongly acid to neutral in the surface layer, strongly acid to slightly alkaline in the subsoil, and slightly acid to moderately alkaline in the substratum

Water table: At a depth of 0.5 to 1.5 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are used for row crops or hay grown in support of dairy farming, or are idle land or woodland. Where drained, this map unit meets the requirements for prime farmland.

This soil is moderately well suited to cultivated crops. The seasonal high water table may delay planting and can make harvesting difficult, especially in low areas. If a drainage system is installed, the soil is suited to the crops commonly grown in the county. A combination of open ditches and subsurface drains generally is effective in areas where outlets are available. Tile drains should be closely spaced because of the restricted permeability. The soil is subject to puddling and compaction if it is tilled when wet. Growing cover crops, minimizing tillage, incorporating crop residue into the soil, and including sod crops in the cropping system help to maintain tilth, increase the content of organic matter, and minimize crusting and clodding.

This soil is moderately well suited to water-tolerant hay and to late-spring pasture. Overgrazing and grazing when the soil is wet are the main management concerns. Overgrazing damages pasture plants, and grazing when the soil is wet can result in surface compaction and damage to the pasture. Using proper stocking rates, rotating livestock grazing, controlling weeds and brush, and restricting grazing when the soil is wet are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion and the hazard of erosion on roads and trails is slight. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand the seasonal wetness grow best.

The depth to saturated zone is the main limitation if this soil is used as a site for dwellings with basements. Where outlets are available, installing drains around footings and sealing foundations and basement walls help to prevent excessive wetness in basements.

The depth to saturated zone, frost action and shrink-swell potential are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems reduce the wetness and the potential for frost action and increase soil strength.

The depth to saturated zone and restricted permeability in the subsoil and substratum are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system in the area around the absorption fields reduces the seasonal wetness, and adding permeable fill material helps to overcome the restricted permeability.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible. Recompacting this soil after it has been disturbed commonly is difficult because of the content of clay.

The capability subclass is 3w.

## 35B—Rhinebeck silt loam, 3 to 8 percent slopes

This soil is gently sloping, very deep, and somewhat poorly drained. It is formed in clayey lacustrine sediments on glacial lake plains. Individual areas are oblong and range from 10 to 75 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface laver:

0 to 9 inches, very dark grayish brown silt loam

Subsoil:

9 to 13 inches, dark yellowish brown friable silty clay loam, with yellowish brown iron accumulations and gray iron depletions

13 to 20 inches, dark yellowish brown firm silty clay, with yellowish brown iron accumulations and gray iron depletions

20 to 38 inches, brown firm silty clay, with yellowish brown iron accumulations and gray iron depletions

Substratum:

38 to 72 inches, grayish brown firm silty clay loam with gray lenses of silt loam, with brown iron accumulations and gray iron depletions

Included in mapping are small areas of the poorly drained Canadice soils in slight depressions and along drainageways; poorly drained Canandaigua soils which have less clay in the subsoil than the Rhinebeck soil; and the moderately well drained Collamer soils on small knolls and slight rises. Also included are small areas of

Churchville soils which have glacial till within a depth of 40 inches, and somewhat poorly drained Niagara soils which have less clay in the subsoil than Rhinebeck soils. Included areas make up about 15 to 25 percent of this unit.

#### Soil properties—

Permeability: Moderately slow or moderate in the surface layer and slow in the subsoil and substratum

Available water capacity: Moderate to high

Soil reaction: Strongly acid to neutral in the surface layer, strongly acid to slightly alkaline in the subsoil, and slightly acid to moderately alkaline in the substratum

Water table: At a depth of 0.5 to 1.5 feet from

November through May Flooding hazard: None

Depth to bedrock: More than 6 feet

Most of the acreage is hayland, pasture, woodland, or idle land. Some areas are used for cultivated crops in support of dairy farming. Where drained, this unit meets the requirements for prime farmland.

This soil is moderately well suited to cultivated crops. The seasonal wetness delays planting in spring and makes harvesting difficult in fall. Erosion is a hazard on long slopes that are intensively cultivated. Interceptor drains can divert runoff and subsurface seepage from the higher adjacent soils and thus reduce the hazard of erosion. Tile drains generally should be closely spaced because of the slowly permeable, clayey subsoil. Tilling only when the soil is at the proper moisture content, minimizes the surface crusting and clodding. Growing cover crops, incorporating crop residue into the soil, and including sod crops in the cropping system help to maintain good tilth, increase the content of organic matter, and minimize crusting and clodding. These practices, along with farming on the contour and stripcropping, also reduce the hazard of erosion.

This soil is moderately well suited to water-tolerant hay and to late-spring pasture. Overgrazing and grazing when the soil is wet are the main management concerns. Overgrazing damages pasture plants, and grazing when the soil is wet can result in surface compaction and damage to the pasture. Using proper stocking rates, rotating livestock grazing, controlling weeds and brush, and restricting grazing when the soil is wet are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is moderate. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand the seasonal wetness grow best.

The depth to saturated zone is the main limitation on sites for dwellings with basements. Where outlets are available, installing drains around footings and sealing foundations and basement walls help to prevent excessive wetness in basements.

The depth to saturated zone, frost action, and shrink-swell potential are the main limitations on sites for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems reduce the wetness and the potential for frost action and increase soil strength.

The depth to saturated zone and restricted permeability in the subsoil and substratum are limitations on sites for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system in the area around the absorption fields reduces the seasonal wetness, and adding permeable fill material helps to overcome the restricted permeability.

Erosion is a hazard on construction sites. It can be controlled by minimizing the

disturbance and by revegetating the site as soon as possible. Recompacting this soil after it has been disturbed commonly is difficult because of the content of clay.

The capability subclass is 3w.

### 35C—Rhinebeck silt loam, 8 to 15 percent slopes

This soil is strongly sloping, very deep, and somewhat poorly drained. It is formed in clayey lacustrine sediments on glacial lake plains. Individual areas are oblong and range from 10 to 35 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 9 inches, very dark grayish brown silt loam

Subsoil:

9 to 13 inches, dark yellowish brown friable silty clay loam, with yellowish brown iron accumulations and gray iron depletions

13 to 20 inches, dark yellowish brown firm silty clay, with yellowish brown iron accumulations and gray iron depletions

20 to 38 inches, brown firm silty clay, with yellowish brown iron accumulations and gray iron depletions

Substratum:

38 to 72 inches, grayish brown firm silty clay loam with gray lenses of silt loam, with brown iron accumulations and gray iron depletions

Included in mapping are small areas of the poorly drained Canadice soils in slight depressions and along drainageways; poorly drained Canandaigua soils which have less clay in the subsoil than the Rhinebeck soil; and the moderately well drained Collamer soils, on small knolls and slight rises. Also included are small areas of Churchville soils, which have glacial till within a depth of 40 inches, and somewhat poorly drained Niagara soils which have less clay in the subsoil than Rhinebeck soils. Included areas make up about 15 to 25 percent of this unit.

#### Soil properties—

Permeability: Moderately slow or moderate in the surface layer and slow in the subsoil and substratum

Available water capacity: Moderate to high

Soil reaction: Strongly acid to neutral in the surface layer, strongly acid to slightly alkaline in the subsoil, and slightly acid to moderately alkaline in the substratum

Water table: At a depth of 0.5 to 1.5 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most of the acreage is hayland, pasture, woodland or idle land. Some areas are used for cultivated crops in support of dairy farming.

This soil is moderately well suited to cultivated crops. Erosion is a hazard where cultivated crops are grown. The seasonal wetness delays planting in spring and makes harvesting difficult in fall. Interceptor drains can divert runoff and subsurface seepage from the higher adjacent soils and thus reduce the hazard of erosion. Tile drains generally should be closely spaced because of the slowly permeable, clayey subsoil. Tilling only when the soil is at the proper moisture content, minimizes the surface crusting and clodding. Growing cover crops, incorporating crop residue into the soil, and including sod crops in the cropping system help to maintain good tilth, increase the content of organic matter, and minimize crusting and clodding. These

practices, along with farming on the contour and stripcropping, also reduce the hazard of erosion.

This soil is moderately well suited to water-tolerant hay and to late-spring pasture. Overgrazing and grazing when the soil is wet are the main management concerns. Overgrazing damages pasture plants, and grazing when the soil is wet can result in surface compaction and damage to the pasture. Using proper stocking rates, rotating livestock grazing, controlling weeds and brush, and restricting grazing when the soil is wet are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion is moderate and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is high. The seasonal wetness increases the seedling mortality rate. Tree species that can withstand the seasonal wetness grow best.

The depth to saturated zone and slope are the main limitations if this soil is used as a site for dwellings with basements. Installing drains around footings, sealing foundations and basement walls help to prevent excessive wetness in basements. Land grading and building on the contour help to overcome the slope limitation.

The depth to saturated zone, frost action, and shrink-swell potential are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems reduce the wetness and the potential for frost action, and increase soil strength. Land grading and building on the contour help to overcome the slope limitation.

The depth to the saturated zone and restricted permeability in the subsoil and substratum are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system in the area around the absorption fields reduces the seasonal wetness, and adding permeable fill material helps to overcome the restricted permeability.

Erosion is a serious hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible. Recompacting this soil after it has been disturbed commonly is difficult because of the content of clay.

The capability subclass is 3e.

# 36—Canadice silty clay loam

This soil is very deep, nearly level, and poorly drained. It is in depressions on lake plains and in the major valleys. Individual areas are oblong or circular and range from 10 to 30 acres in size. Slopes generally are smooth and range from 0 to 3 percent.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 8 inches, very dark gray silty clay loam

Subsoil

8 to 18 inches, grayish brown firm silty clay loam, with yellowish brown iron accumulations

18 to 29 inches, olive gray firm silty clay with strong brown iron accumulations 29 to 42 inches, dark gray firm silty clay, with strong brown iron accumulations

Substratum:

42 to 72 inches, grayish brown firm silty clay loam with varves of silty clay and brown iron accumulations and gray iron depletions

Included in mapping are small areas of the somewhat poorly Rhinebeck soils on the slightly elevated parts of the landscape and small areas of Canandaigua soils,

which are more silty than the Canadice soil. Also included are small areas of poorly drained Getzville soils which are underlain with sand and gravel and small areas of soils that have a mucky surface layer and are in depressions and potholes. Included areas make up about 20 to 30 percent of this unit.

#### Soil properties—

Permeability: Moderate or moderately slow in the surface layer, and very slow in the subsoil and substratum

Available water capacity: Moderate to high

Soil reaction: very strongly acid to slightly acid in the surface layer, very strongly acid to slightly alkaline in the subsoil, and from neutral to moderately alkaline in the substratum

Water table: At the surface or at a depth of 1.0 foot from November through May Flooding hazard: None

Depth to bedrock: More than 6 feet

Most of the acreage is idle land that supports water-tolerant grasses, brush, and trees. Some areas are used for hay or pasture. This soil meets the requirements for hydric soils.

This soil is poorly suited to cultivated crops unless the soil is drained. Draining the soil is commonly difficult because slopes are nearly level and suitable outlets are not available. A combination of surface and tile drains is needed. Because of the very slow permeability, subsurface drains should be closely spaced. Where a drainage system is feasible, the soil can be used for selected crops, but maintaining tilth is a management concern. Because of the high content of clay, clodding and crusting of the surface are management concerns. Growing cover crops, incorporating crop residue into the soil, and tilling only when the soil is at the proper moisture content, help to maintain good tilth and the content of organic matter.

This soil is marginally suited to hay and to late-spring pasture. Undrained areas cannot be grazed in spring because of the risk of damage to the surface layer. Overgrazing and surface compaction can damage desirable plant species and cause water to pond on the surface. Partially draining the soil, using proper stocking rates, rotating livestock grazing, controlling brush and weeds by mowing annually, and restricting grazing when the soil is wet are the main management concerns.

The potential productivity of this soil for red maple is moderate. The hazard of off-road or off-trail erosion and the hazard of erosion on roads and trails is slight. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand seasonal wetness grow best.

Depth to saturated zone and shrink-swell potential are the main management concerns on sites for dwellings with basements. The soil is too wet for the construction of dwellings with basements without major modifications. Adjacent areas that are more suitable should be considered for dwellings.

Depth to saturated zone and shrink-swell potential are the main management concerns on sites for local roads and streets. Frost action is also a limitation. Building on raised fill material will help to reduce these limitations.

The depth to saturated zone and the restricted permeability in the subsoil and substratum are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Adjacent areas that are more suitable should be considered for locating septic tank absorption fields.

In many areas this soil is well suited to wetland wildlife habitat and to the development of recreational ponds.

Capability subclass is 4w.

### 37A—Tonawanda silt loam, 0 to 3 percent slopes

This soil is nearly level, very deep, and somewhat poorly drained. It is on broad flats on lake plains and in low areas in the larger valleys. Individual areas are irregular in shape and generally range from 10 to 75 acres in size, but some are as large as 200 acres or more.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 9 inches, very dark grayish brown silt loam with 2 percent gravel

#### Subsoil:

- 9 to 14 inches, brown friable silt loam, with yellowish brown iron accumulations, gray iron depletions and 2 percent gravel
- 14 to 22 inches, grayish brown friable silt loam, with yellowish brown and strong brown iron accumulations, gray iron depletions and 2 percent gravel
- 22 to 38 inches, grayish brown friable silt loam, with yellowish brown and yellowish red iron accumulations, gray iron depletions and 2 percent gravel

#### Substratum:

- 38 to 64 inches, grayish brown, yellowish brown, and gray friable silt loam, with 5 percent gravel
- 64 to 72 inches, grayish brown loose stratified loamy fine sand and medium sand and 10 percent gravel

Included in mapping are small areas of poorly drained Getzville soils in slight depressions which are underlain by sandy deposits; moderately well drained Scio soils on small knolls and in the slightly higher positions on the landscape; Swormville soils which are underlain by sandy deposits; and Red Hook soils which have gravelly layers in the subsoil. Included areas make up about 10 to 25 percent of this unit.

#### Soil properties—

Permeability: Moderate or moderately slow in the surface layer and subsoil, and moderately slow or slow in the substratum

Available water capacity: High

Soil reaction: Strongly acid to neutral in the surface layer and subsoil, and moderately acid to slightly alkaline in the substratum

Water table: At a depth of 0.5 to 1.5 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are used for row crops grown in support of dairy farming. Some of the acreage is idle land. Small woodlots are in some areas. Where drained, this soil meets the requirements for prime farmland.

This soil is moderately well suited to cultivated crops and vegetables. The seasonal high water table may delay planting and make harvesting difficult, especially in low areas. If a drainage system is installed, the soil is suited to the crops commonly grown in the county. A combination of open ditches and subsurface drains generally is effective in areas where adequate outlets are available. This relatively stone-free soil generally can be easily tilled, but tilth and soil structure deteriorate if the soil is plowed when wet. Minimizing tillage, growing cover crops, incorporating crop residue into the soil, and including sod crops in the cropping system help to maintain tilth and increase the content of organic matter.

This soil is well suited to water-tolerant hay and to late-spring pasture. Overgrazing and grazing when the soil is wet are the main management concerns. Overgrazing damages pasture plants, and grazing when the soil is wet can result in surface

compaction and damage to the pasture. Using proper stocking rates, rotating livestock grazing, controlling weeds and brush, and restricting grazing when the soils are wet, are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion and the hazard of erosion on roads and trails is slight. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand seasonal wetness grow best.

The depth to saturated zone is the main limitation if this soil is used as a site for dwellings with basements. Where outlets are available, installing drains around footings and sealing foundations and basement walls help to prevent excessive wetness in basements.

The depth to saturated zone and frost action are the main limitations on sites for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems help to overcome these limitations.

The depth to saturated zone and the restricted permeability in the substratum are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system in the area around the absorption field and adding permeable fill material help to overcome the seasonal wetness and restricted permeability.

The capability subclass is 3w.

## 37B—Tonawanda silt loam, 3 to 8 percent slopes

This soil is gently sloping, very deep and somewhat poorly drained. It is on broad flats on lake plains and in low areas in the larger valleys. Individual areas are irregular in shape and range from 10 to 75 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows— Surface layer:

0 to 9 inches, very dark grayish brown silt loam with 2 percent gravel

#### Subsoil:

- 9 to 14 inches, brown friable silt loam, with yellowish brown iron accumulations, gray iron depletions and 2 percent gravel
- 14 to 22 inches, grayish brown friable silt loam, with yellowish brown and strong brown iron accumulations, gray iron depletions and 2 percent gravel
- 22 to 38 inches, grayish brown friable silt loam, with yellowish brown and yellowish red iron accumulations, gray iron depletions and 2 percent gravel

#### Substratum:

- 38 to 64 inches, grayish brown, yellowish brown and gray friable silt loam, with 5 percent gravel
- 64 to 72 inches, grayish brown loose stratified loamy fine sand and medium sand and 10 percent gravel

Included in mapping are small areas of poorly drained Getzville soils in slight depressions which are underlain by sandy deposits; the moderately well drained Scio soils on small knolls and in the slightly higher positions on the landscape; Swormville soils which are underlain by sandy deposits; and Red Hook soils which have gravelly layers in the subsoil. Included areas make up about 10 to 25 percent of this unit.

#### Soil properties—

Permeability: Moderate or moderately slow in the surface layer and subsoil, and moderately slow or slow in the substratum

Available water capacity: High

Soil reaction: Strongly acid to neutral in the surface layer and subsoil, and moderately acid to slightly alkaline in the substratum

Water table: At a depth of 0.5 to 1.5 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are used for row crops grown in support of dairy farming. Some of the acreage is idle land. Small woodlots are in some areas. Where drained, this soil meets the requirements for prime farmland.

This soil is moderately well suited to cultivated crops and vegetables. The seasonal high water table may delay planting and can make harvesting difficult, especially in low areas. If a drainage system is installed, the soil is suited to the crops commonly grown in the county. A combination of open ditches and subsurface drains generally is effective in areas where adequate outlets are available. Generally, this relatively stone-free soil can be easily tilled, but tilth and soil structure deteriorate if the soil is plowed when wet. If cultivated, erosion is a concern, especially where slopes are long. Measures that minimize surface crusting and compaction and control runoff are needed. Minimizing tillage, growing cover crops, incorporating crop residue into the soil, and including sod crops in the cropping system help to maintain tilth and increase the content of organic matter.

This soil is well suited to water-tolerant hay and to late-spring pasture. Overgrazing and grazing when the soil is wet are the main management concerns. Overgrazing damages the pasture plants, and grazing when the soil is wet can result in surface compaction and damage to the pasture. Using proper stocking rates, rotating livestock grazing, controlling weeds and brush, and restricting grazing when the soils are wet, are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is moderate. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand the seasonal wetness grow best.

The depth to saturated zone is the main limitation if this soil is used as a site for dwellings with basements. Where outlets are available, installing drains around footings and sealing foundations and basement walls help to prevent excessive wetness in basements.

The depth to saturated zone and the frost action are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems help to overcome these limitations.

The depth to saturated zone and restricted permeability in the substratum are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system in the area around the absorption fields and adding permeable fill material help to overcome the seasonal wetness and restricted permeability.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 3w.

# 38A—Niagara silt loam, 0 to 3 percent slopes

This soil is nearly level, very deep, and somewhat poorly drained. It is mainly in low areas on lake plains and to a lesser extent on broad flats in the larger valleys. Individual areas are oblong or irregularly shaped. They range from 10 to 75 acres in size, but some are as large as 200 acres or more.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 8 inches, very dark grayish brown silt loam

Subsurface layer:

8 to 12 inches, brown friable silt loam

Subsoil:

16 to 24 inches, brown firm silt loam, with yellowish brown iron accumulations and light brownish gray iron depletions

24 to 36 inches, brown firm silty clay loam, with yellowish brown iron accumulations and grayish brown iron depletions

Substratum:

36 to 72 inches, brown firm silt loam, with light brownish gray iron depletions

Included in mapping are small areas of the poorly drained Canandaigua soils in slight depressions and along drainageways; Rhinebeck soils which have more clay in the subsoil than the Niagara soil; and Churchville soils which have glacial till within a depth of 40 inches. Also included are small areas of Niagara soils that have a gravelly substratum. Included areas make up about 10 to 20 percent of this unit.

#### Soil properties—

Permeability: Moderate in the surface and subsurface layer, moderately slow in the subsoil, and moderately slow or slow in the substratum

Available water capacity: High

Soil reaction: Strongly acid to neutral in the surface layer and subsurface layer, moderately acid to slightly alkaline in the subsoil, and neutral to moderately alkaline in the substratum

Water table: At a depth of 0.5 to 1.5 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are used for row crops or hay grown in support of dairy farming, are idle land, or are woodland. Where drained, this soil meets the requirements for prime farmland.

This soil is moderately well suited to cultivated crops and vegetables. The seasonal high water table may delay planting and can make harvesting difficult, especially in low areas. If a drainage system is installed, the soil is suited to the crops commonly grown in the county. A combination of open ditches and subsurface drains generally is effective in areas where outlets are available. Tile drains should be closely spaced because of the moderately slow or slow permeability. The soil is subject to puddling and compaction if it is tilled when wet. Growing cover crops, minimizing tillage, incorporating crop residue into the soil, and including sod crops in the cropping system help to maintain tilth, increase the content of organic matter and minimize crusting and clodding.

This soil is well suited to water-tolerant hay and to late-spring pasture. Overgrazing and grazing when the soil is wet are the main management concerns. Overgrazing damages pasture plants, and grazing when the soil is wet can result in surface compaction and damage to the pasture. Using proper stocking rates, rotating livestock grazing, controlling weeds and brush, and restricting grazing when the soil is wet are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion and the hazard of erosion on roads and trails is slight. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand the seasonal wetness grow best.

The depth to saturated zone is the main limitation if this soil is used as a site for dwellings with basements. Where outlets are available, installing drains around footings and sealing foundations and basement walls help to prevent excessive wetness in basements.

The depth to saturated zone and frost action are the main limitations on sites for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems help to overcome these limitations.

The depth to saturated zone and restricted permeability in the subsoil and substratum are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system in the area around the absorption field reduces the seasonal wetness, and adding permeable fill material helps to overcome the slow permeability.

The capability subclass is 3w.

## 38B—Niagara silt loam, 3 to 8 percent slopes

This soil is gently sloping, very deep, and somewhat poorly drained. It is mainly in low areas on lake plains and to a lesser extent on broad flats in the larger valleys. Individual areas are oblong or irregularly shaped. They commonly range from 10 to 75 acres in size, but some are as large as 100 acres or more.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 8 inches, very dark grayish brown silt loam

Subsurface layer:

8 to 12 inches, brown friable silt loam

Subsoil:

12 to 16 inches, grayish brown firm silty clay loam, with yellowish brown iron accumulations and light brownish gray iron depletions

16 to 24 inches, brown firm silt loam, with yellowish brown iron accumulations and light brownish gray iron depletions

24 to 36 inches, brown firm silty clay loam, with yellowish brown iron accumulations and grayish brown iron depletions

Substratum:

36 to 72 inches, brown firm silt loam, with light brownish gray iron depletions

Included in mapping are small areas of the poorly drained Canandaigua soils in slight depressions and along drainageways; Rhinebeck soils which have more clay in the subsoil than the Niagara soil; and Churchville soils which have glacial till within a depth of 40 inches. Also included are small areas of Niagara soils that have a gravelly substratum. Included areas make up about 10 to 20 percent of this unit.

#### Soil properties—

*Permeability:* Moderate in the surface and subsurface layer, moderately slow in the subsoil, and moderately slow or slow in the substratum

Available water capacity: High

Soil reaction: Strongly acid to neutral in the surface layer and subsurface layer, moderately acid to slightly alkaline in the subsoil, and neutral to moderately alkaline in the substratum

Water table: At a depth of 0.5 to 1.5 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are used for row crops or hay grown in support of dairy farming, are idle land, or are woodland. Where drained, this soil meets the requirements for prime farmland.

This soil is moderately well suited to cultivated crops and vegetables. The seasonal high water table may delay planting and can make harvesting difficult, especially in low areas. If a drainage system is installed, the soil is suited to the crops commonly grown in the county. A combination of open ditches and subsurface drains generally is effective in areas where outlets are available. Tile drains should be closely spaced because of the restricted permeability. If cultivated, erosion may be a concern, especially where slopes are long. Measures that minimize surface crusting and compaction, and control runoff are needed. Growing cover crops, minimizing tillage, incorporating crop residue into the soil, and including sod crops in the cropping system help to maintain tilth, increase the content of organic matter and minimize crusting and clodding.

This soil is well suited to water-tolerant hay and to late-spring pasture. Overgrazing and grazing when the soil is wet are the main management concerns. Overgrazing damages pasture plants, and grazing when the soil is wet can result in surface compaction and damage to the pasture. Using proper stocking rates, rotating livestock grazing, controlling weeds and brush, and restricting grazing when the soil is wet are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is moderate. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand the seasonal wetness grow best.

The depth to saturated zone is the main limitation if this soil is used as a site for dwellings with basements. Where outlets are available, installing drains around footings and sealing foundations and basement walls help to prevent excessive wetness in basements.

The depth to saturated zone and frost action are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems help to overcome these limitations.

The depth to saturated zone and restricted permeability in the subsoil and substratum are limitations on sites for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system in the area around the absorption field reduces the seasonal wetness, and adding permeable fill material helps to overcome the slow permeability.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 3w.

## 39A—Halsey silt loam, 0 to 3 percent slopes

This soil is nearly level, very deep, and very poorly drained. It is in low areas and depressions on outwash plains. Individual areas are circular or oblong. They generally range from 5 to 50 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 6 inches, very dark gray silt loam with 10 percent gravel

Subsoil:

6 to 21 inches, gray very friable gravelly silt loam, with yellowish brown iron accumulations, and 15 percent gravel

21 to 34 inches, gray very friable gravelly loam, with yellowish brown iron accumulations, and 20 percent gravel

Substratum:

34 to 48 inches, dark grayish brown loose very gravelly loamy fine sand, with yellowish brown iron accumulations, and 45 percent gravel

48 to 72 inches, dark grayish brown loose stratified gravelly sand, with yellowish brown iron accumulations and 30 percent gravel

Included in mapping are small areas of the somewhat poorly drained Red Hook soils on the slightly higher rises and benches; soils having a subsoil that is finer textured than that of the Halsey soil; and soils that have a mucky surface layer. Also included are small areas of Alden and Lamson soils. Alden soils have more clay in the subsoil and Lamson soils are sandy throughout the profile. Included areas make up about 10 to 20 percent of this unit.

#### Soil properties—

*Permeability:* Moderate in the surface layer, moderate or moderately rapid in the subsoil, and rapid in the substratum

Available water capacity: Moderate or high

Soil reaction: Moderately acid to neutral in the surface layer and subsoil, slightly acid to moderately alkaline in the substratum

Water table: At the surface or to a depth of 0.5 feet from September through June Flooding hazard: None

Depth to bedrock: More than 6 feet

Ponding hazard: As much as 0.5 feet above the surface from October through May

Most of the acreage is idle land that supports water-tolerant grasses, brush, and trees. Some areas are used as pasture, and some drained areas are cultivated. This soil meets the requirements for hydric soils.

Unless drained, this soil is not suited to cultivated crops. If properly drained, this soil is suited to a variety of crops. Draining this soil may be difficult because of its low position in the landscape. Tilth and structure will deteriorate if the soil is plowed when wet. If this soil is drained and cultivated, using cover crops, minimum tillage, incorporating crop residue into the soil, tillage at the proper soil moisture content and including sod crops in the cropping system helps to maintain tilth and increase organic matter content.

This soil is poorly suited for pasture. The surface layer can easily become compacted when wet. Surface compaction and overgrazing can deplete the stand of desirable plant species and result in ponding. The pasture plants selected for seeding should be those that can withstand long wet periods and restricted root growth. The pasture should be plowed, a seedbed prepared, and seeds planted during dry periods in summer. Using proper stocking rates, rotating livestock grazing, and controlling brush and weeds by mowing annually are the main management concerns.

The potential productivity of this soil for red maple is moderate. The hazard of offroad or off-trail erosion and erosion on roads and trails is slight. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand the seasonal wetness grow best.

Ponding and depth to saturated zone are the main management concerns if this soil is used as a site for dwellings with basements. The soil is too wet for the construction of dwellings with basements without major modifications. Included areas of the somewhat poorly drained Red Hook soils may be slightly better sites for these dwellings. Building on raised fill material helps to overcome the wetness.

Ponding, depth to saturated zone, and frost action are the main management concerns if this soil is used as a site for local roads and streets. Building on raised fill material helps to overcome the wetness and reduces the potential for frost action.

Ponding, depth to saturated zone, and poor filtering capacity are management concerns if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Adjacent areas that are more suitable should be considered for locating septic tank absorption fields.

This soil is suited to wetland wildlife habitat and to the development of recreational ponds.

The capability subclass is 5w.

## 40A—Williamson silt loam, 0 to 3 percent slopes

This soil is nearly level, very deep, and moderately well drained. It is on former lake plains and silt mantled uplands. Individual areas are oblong or circular, and range from 5 to 30 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 8 inches, dark grayish brown silt loam

Subsoil:

8 to 14 inches, yellowish brown friable silt loam

14 to 20 inches, pale brown friable silt loam, with strong brown iron accumulations 20 to 38 inches, a fragipan of dark yellowish brown very firm silt loam, with strong brown iron accumulations and grayish brown iron depletions

Substratum:

38 to 54 inches, brown firm silt loam, with strong brown iron accumulations and grayish brown iron depletions

54 to 72 inches, olive brown firm silt loam, with varves of very fine sandy loam

Included in mapping are small areas of the somewhat poorly drained Wallington soils along drainageways and slight depressions, and somewhat poorly drained Tonawanda soils in depressions. Moderately well drained Scio soils and well drained Unadilla soils are included where the fragipan is absent. Included areas make up about 10 to 20 percent of the unit.

#### Soil properties—

Permeability: Moderate in the surface and upper part of the subsoil, very slow or slow in the fragipan and substratum

Available water capacity: Low to moderate

Soil reaction: Very strongly acid to moderately acid in the surface, subsurface, and fragipan layer; and strongly acid to neutral in the substratum

Water table: Perched at a depth of 1.2 to 1.8 feet from November through May Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are used for row crops grown in support of dairy farming. Some of the acreage is idle land that is reverting to brush and shrubs, or is wooded. This soil meets the requirements for prime farmland.

This soil is well suited to most of the crops commonly grown in the county. Draining wet spots permits earlier tillage of fields. The soil commonly has no stones on the surface and can be easily tilled. The soil is erodible in cultivated areas, especially where slopes are long. Measures that minimize surface crusting and compaction and reduce the hazard of erosion are needed. Growing cover crops, incorporating crop residue into the soil, and tilling only when the soil is at the proper moisture content help to maintain tilth and increase the content of organic matter.

This soil is well suited to pasture. Prevention of overgrazing and restricted grazing when the soil is wet are the main concerns in managing pasture. Overgrazing damages pasture and results in erosion. Grazing when the soil is wet seals the surface and compacts the soil. Using proper stocking rates, rotating livestock grazing, and controlling weeds by mowing annually are the main management concerns.

The potential productivity of this soil for sugar maple is moderately high. The hazard of off-road or off-trail erosion and the hazard of erosion on roads and trails are slight. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival.

The depth to saturated zone is the main limitation if this soil is used as a site for dwellings with basements. Where outlets are available, installing drains around footings reduces wetness. Also, sealing foundations and basement walls helps to prevent excessive wetness in basements.

Frost action and depth to saturated zone are the main limitations if this soil is used as a site for local roads and streets. Adding a coarse textured subgrade or base material and installing roadside drainage systems reduce the potential for frost action and wetness.

The depth to saturated zone, depth to dense material, and restricted permeability are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system in the area around the absorption field reduces the seasonal wetness, and adding permeable fill material helps overcome the very slow or slow permeability.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 2w.

# 40B—Williamson silt loam, 3 to 8 percent slopes

This soil is gently sloping, very deep, and moderately well drained. It is on former lake plains and silt mantled uplands. Individual areas are oblong or circular and range from 5 to 30 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 8 inches, dark grayish brown silt loam

#### Subsoil:

8 to 14 inches, yellowish brown friable silt loam,

14 to 20 inches, pale brown friable silt loam, with strong brown iron accumulations 20 to 38 inches, a fragipan of dark yellowish brown very firm silt loam, with strong brown iron accumulations and grayish brown iron depletions

#### Substratum:

38 to 54 inches, brown firm silt loam, with strong brown iron accumulations and grayish brown iron depletions

54 to 72 inches, olive brown firm silt loam, with varves of very fine sandy loam

Included in mapping are small areas of the somewhat poorly drained Wallington soils along drainageways and slight depressions, and somewhat poorly drained Tonawanda soils in depressions. Moderately well drained Scio soils and well drained Unadilla soils are included where the fragipan is absent. Included areas make up about 10 to 20 percent of the unit.

#### Soil properties—

Permeability: Moderate in the surface and subsurface layers, very slow or slow in the fragipan layer and substratum

Available water capacity: Low or moderate

Soil reaction: Very strongly acid to moderately acid in surface, subsurface, and fragipan layer; and strongly acid to neutral in the substratum

Water table: Perched at a depth of 1.2 to 1.8 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are used for row crops grown in support of dairy farming. Some of the acreage is idle land that is reverting to brush and shrubs, or is wooded. This soil meets the requirements for prime farmland.

This soil is well suited to most of the crops commonly grown in the county. Draining wet spots permits earlier tillage of fields. The soil commonly has no stones and can be easily tilled. The soil is highly erodible in cultivated areas, especially where slopes are long. Measures that minimize surface crusting and compaction, and reduce the hazard of erosion are needed. Growing cover crops, incorporating crop residue into the soil, and tilling only when the soil is at the proper moisture content help to maintain tilth and increase the content of organic matter. Farming on the contour, minimizing tillage, stripcropping, and maintaining year-round plant cover help to control erosion.

This soil is well suited to pasture. Prevention of overgrazing and restricted grazing when the soil is wet are the main concerns in managing pasture. Overgrazing damages pasture and results in erosion. Grazing when the soil is wet seals the surface and compacts the soil. Using proper stocking rates, rotating livestock grazing, and controlling weeds by mowing annually are the main management concerns.

The potential productivity of this soil for sugar maple is moderately high. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is moderate. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival.

The depth to saturated zone is the main limitation on sites for dwellings with basements. Where outlets are available, installing drains around footings reduces wetness. Also, sealing foundations and basement walls helps to prevent excessive wetness in basements

Frost action and depth to saturated zone are the main limitations if this soil is used as a site for local roads and streets. Adding a coarse textured subgrade or base material and installing roadside drainage systems reduces the potential for frost action and wetness.

The depth to saturated zone, depth to dense material, and restricted permeability are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system in the area around the absorption field reduces the seasonal wetness, and adding permeable fill material helps overcome the slow permeability.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 2e

# 40C—Williamson silt loam, 8 to 15 percent slopes

This soil is strongly sloping, very deep and moderately well drained. It is on silt mantled uplands and the edges of lake plains. Individual areas are oblong, and range from 5 to 30 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 8 inches, dark grayish brown silt loam

Subsoil

8 to 14 inches, yellowish brown friable silt loam,

14 to 20 inches, pale brown friable silt loam, with strong brown iron accumulations 20 to 38 inches, a fragipan of dark yellowish brown very firm silt loam, with strong brown iron accumulations and grayish brown iron depletions

Substratum:

38 to 54 inches, brown firm silt loam, with strong brown iron accumulations and grayish brown iron depletions

54 to 72 inches, olive brown firm silt loam, with varves of very fine sandy loam

Included in mapping are small areas of the somewhat poorly drained Wallington soils along drainageways and slight depressions, and somewhat poorly drained Tonawanda soils in depressions. Moderately well drained Scio soils and well drained Unadilla soils are included where the fragipan is absent. Included areas make up about 10 to 20 percent of the unit.

#### Soil properties—

Permeability: Moderate in the surface and subsurface layers, very slow or slow in the fragipan layer and substratum

Available water capacity: Low or moderate

Soil reaction: Very strongly acid to moderately acid in surface, subsurface and fragipan layer and strongly acid to neutral in the substratum

Water table: Perched at a depth of 1.2 to 1.8 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Many areas are used as hayland, pasture, or woodland. Some of the acreage is used for cultivated crops grown in support of dairy farming or is idle land.

This soil is moderately well suited to most of the crops commonly grown in the county. Erosion is a hazard where cultivated crops are grown. Planting may be delayed by wetness in spring. Draining wet spots permits earlier tillage of fields. The soil commonly has no stones and can be easily tilled. It is highly erodible in cultivated areas, especially where slopes are long. Measures that minimize surface crusting and compaction, and reduce the hazard of erosion are needed. Growing cover crops, incorporating crop residue into the soil, and tilling only when the soil is at the proper moisture content help to maintain tilth and increase the content of organic matter. Farming on the contour, minimizing tillage, stripcropping, and maintaining year-round plant cover help to control erosion.

This soil is well suited to pasture. Prevention of overgrazing and restricted grazing when the soil is wet are the main concerns in managing pasture. Overgrazing damages pasture and results in erosion. Grazing when the soil is wet seals the surface and compacts the soil. Using proper stocking rates, rotating livestock grazing, and controlling weeds by mowing annually are the main management concerns.

The potential productivity of this soil for sugar maple is moderately high. The hazard of off-road or off-trail erosion is moderate and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival.

The depth to saturated zone and slope are the main limitations if this soil is used as a site for dwellings with basements. Where outlets are available, installing drains around footings reduces wetness. Also, sealing foundations and basement walls

helps to prevent excessive wetness in basements. Land grading and building on the contour help to overcome the slope limitation.

Frost action, depth to saturated zone, and slope are the main limitations if this soil is used as a site for local roads and streets. Adding a coarse textured subgrade or base material and installing roadside drainage systems reduces the potential for frost action and wetness. Land grading and building on the contour help to overcome the slope limitation.

The depth to saturated zone, depth to dense material, and restricted permeability are limitations on sites for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system in the area around the absorption field reduces the seasonal wetness, and adding permeable fill material helps overcome the slow permeability.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 3e.

## 41A—Barcelona silt loam, 0 to 3 percent slopes

This soil is nearly level, deep, and somewhat poorly drained. It is formed in glacial lake-laid sediment and in the underlying till. It is in areas of lake plains where bedrock is at a depth of 40 to 60 inches. Individual areas are oblong. They commonly are from 5 to 75 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 9 inches, very dark grayish brown silt loam with less than 2 percent channers

#### Subsurface layer:

9 to 21 inches, grayish brown friable silt loam, with yellowish brown iron accumulations and light brownish gray iron depletions, and 2 percent channers

#### Subsoil:

- 21 to 36 inches, brown firm silty clay loam, with yellowish brown iron accumulations and gray iron depletions and 2 percent channers
- 36 to 42 inches, brown firm channery silt loam, with yellowish brown iron accumulations and gray iron depletions and 15 percent channers

#### Substratum:

- 42 to 46 inches, gray, brown and yellowish brown firm very channery silt loam with 50 percent channers
- 46 inches, dark rippable shale bedrock

Included in mapping are small areas of Rhinebeck and Churchville soils, which have more clay in the subsoil than the Barcelona soil and are very deep over bedrock, and small areas of Niagara soils, which are not underlain by glacial till. Also included are small areas of soils that are similar to the Barcelona soil, but are poorly drained and are in depressions and along drainageways, and small areas of soils that have bedrock within a depth of 40 inches. Included areas make up about 10 to 20 percent of the unit.

#### Soil properties—

Permeability: Moderate in the surface layer, moderately slow in the subsurface layer and in the upper part of the subsoil, and moderately slow or moderate in the lower subsoil and substratum

Available water capacity: High

Soil reaction: Moderately acid to neutral in the surface layer, and from moderately acid to slightly alkaline in the subsurface layer, subsoil, and substratum Water table: At a depth of 0.5 to 1.5 feet from November through May

Flooding hazard: None

Depth to bedrock: 40 to 60 inches

Most of the acreage is idle land. Cleared areas are used for cultivated crops, vegetables, hay, or vineyards. Where drained, this soil meets the requirements for prime farmland.

This soil is moderately well suited to cultivated crops. Undrained areas are better suited to short season crops and to hay and pasture. Wetness delays tillage in spring and makes harvesting difficult in fall. Crops in depressional areas are damaged during prolonged wet periods. The soil is subject to puddling and compaction if it is tilled when wet. Tile drains generally should be closely spaced because of the restricted permeability in the subsoil. Growing cover crops, returning crop residues to the soil, and including sod crops in the cropping system help to maintain good tilth and minimize crusting and clodding.

This soil is well suited to water-tolerant hay and to late-spring pasture. Grazing when the soil is wet is the main concern in managing pasture. It causes surface compaction, restricts plant growth, and can deplete the stand of pasture grasses. Using proper stocking rates, rotating livestock grazing, restricting grazing when the soil is wet, and controlling brush and weeds by mowing annually are the major management concerns.

The potential productivity of this soil for sugar maple is moderately high. The hazard of off-road or off-trail erosion and the hazard of erosion on roads and trails are slight. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand the seasonal wetness grow best.

The depth to saturated zone and depth to soft bedrock are the main limitations if this soil is used as a site for dwellings with basements. Although excavation is costly, the shale bedrock generally can be ripped with a backhoe. Where outlets are available, installing drains around footings and sealing foundations and basement walls help to prevent excessive wetness in basements.

The depth to saturated zone and frost action are limitations if this soil is used as a site for local roads and streets. Building on raised coarse textured fill material and installing a drainage system reduce the wetness and potential for frost action.

The depth to saturated zone, the restricted permeability in the subsoil and substratum, and depth to bedrock are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system in the area around the absorption field reduces the seasonal wetness.

The capability subclass is 3w.

# 41B—Barcelona silt loam, 3 to 8 percent slopes

This soil is gently sloping, deep, and somewhat poorly drained. It formed in glacial lake-laid sediment and in the underlying till. It is in areas on former lake plains where bedrock is at a depth of 40 to 60 inches. Individual areas are oblong, and range from 5 to 75 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 9 inches, very dark grayish brown silt loam with less than 2 percent channers

#### Subsurface layer:

9 to 21 inches, grayish brown friable silt loam, with yellowish brown iron accumulations and light brownish gray iron depletions, and 2 percent channers

#### Subsoil:

21 to 36 inches, brown firm silty clay loam, with yellowish brown iron accumulations and gray iron depletions and 2 percent channers

36 to 42 inches, brown firm channery silt loam, with yellowish brown iron accumulations and gray iron depletions and 15 percent channers

#### Substratum:

42 to 46 inches, gray, brown and yellowish brown firm very channery silt loam with 50 percent channers

46 inches, dark rippable shale bedrock

Included in mapping are small areas of Rhinebeck and Churchville soils, which have more clay in the subsoil than the Barcelona soil and are very deep over bedrock, and small areas of Niagara soils which are very deep over bedrock and are not underlain by glacial till. Also included are small areas of soils that are similar to the Barcelona soil but are poorly drained, and are in depressions and along drainageways. Included areas make up about 10 to 20 percent of this unit.

#### Soil properties—

Permeability: Moderate in the surface layer, moderately slow in the subsurface layer and in the upper part of the subsoil, and moderately slow or moderate in the lower subsoil and substratum

Available water capacity: High

Soil reaction: Moderately acid to neutral in the surface layer, and moderately acid to slightly alkaline in the subsurface layer, subsoil, and substratum

Water table: At a depth of 0.5 to 1.5 feet from November through May

Flooding hazard: None

Depth to bedrock: 40 to 60 inches

Most of the acreage is idle land. Some areas are vineyards that have been abandoned. Cleared areas are used for cultivated crops, vegetables, hay, or vineyards. Where drained, this soil meets the requirements for prime farmland.

This soil is moderately well suited to cultivated crops. If a drainage system is installed, and tilth and fertility are maintained, the soil is suited to many of the crops commonly grown in the county. Undrained areas are better suited to short-season crops and to hay and pasture. Wetness delays tillage in spring and makes harvesting difficult in late fall. Erosion is a hazard in intensively cultivated areas where slopes are long. Interceptor drains can divert runoff and seepage from the higher adjacent soils, and thus reduce the hazard of erosion. Puddling and compaction can occur if the soil is tilled when wet. Tile drains generally should be closely spaced because of the restricted permeability in the subsoil. Minimizing tillage, growing cover crops, tilling across the slope, returning crop residue to the soil, including grasses and legumes in the cropping system, and plowing only when the soil is at the proper moisture content help to maintain good tilth and control erosion.

This soil is well suited to water-tolerant hay and to late-spring pasture. Grazing when the soil is wet is the main concern in managing pasture. It causes surface compaction, restricts plant growth, and can deplete the stand of pasture grasses, and thus result in serious erosion. Using proper stocking rates, rotating livestock grazing, restricting grazing when the soil is wet, and controlling brush and weeds by mowing annually are desirable management practices.

The potential productivity of this soil for sugar maple is moderately high. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and

trails is moderate. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand the seasonal wetness grow best.

The depth to saturated zone and depth to soft bedrock are the main limitations if this soil is used as a site for dwellings with basements. Although excavation is costly, the shale bedrock generally can be ripped with a backhoe. Where outlets are available, installing drains around footings and sealing foundations and basement walls help to prevent excessive wetness in basements.

The depth to saturated zone and frost action are limitations if this soil is used as a site for local roads and streets. Building on coarse textured raised fill material and installing a drainage system reduce the wetness and potential for frost action.

The depth to saturated zone, restricted permeability in the subsoil and substratum, and depth to bedrock are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system in the area around the absorption field reduces the seasonal wetness.

This soil is subject to erosion if the plant cover is removed during construction. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 3w.

## 42A—Elnora fine sandy loam, 0 to 3 percent slopes

This soil is nearly level, very deep, and moderately well drained. It is on broad flats on lowland lake plains and in the major valleys. Individual areas are oblong or irregularly shaped and range from 5 to 30 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 7 inches, very dark grayish brown fine sandy loam

Subsoil:

7 to 16 inches, strong brown friable, loamy fine sand

16 to 27 inches, yellowish brown friable loamy fine sand, with strong brown iron accumulations

Substratum:

27 to 30 inches, brown loose fine sand, with yellowish brown iron accumulations, and 10 percent gravel

30 to 72 inches, grayish brown loose fine sand, with yellowish brown iron accumulations, and 2 percent gravel

Included in mapping are small areas of the somewhat poorly drained Minoa soils along drainageways and in slight depressions. Also included are spots of the well drained Colonie soils on small knolls and slightly higher positions on the landscape, and small areas of soils that have an increased content of clay, occurring in bands or thin layers, in the subsoil. Included areas make up about 15 to 25 percent of this unit.

#### Soil properties—

Permeability: Moderately rapid in the surface layer, and rapid in the subsoil and substratum

Available water capacity: Low to moderate

Soil reaction: Extremely acid to slightly acid in the surface layer and subsoil, and strongly acid to neutral in the substratum

Water table: At a depth of 1.5 to 2.0 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are used for cultivated crops grown in support of dairy farming. Some of the acreage is idle land. Small woodlots are in some areas. This soil meets the requirements for prime farmland.

This soil is moderately well suited to cultivated crops and to early season vegetables. Crop growth is limited by droughtiness in mid-summer and by low natural fertility. This stone-free soil generally can be easily tilled. Minimizing tillage, growing cover crops, incorporating crop residue into the soil, and including sod crops in the cropping system help to maintain tilth, and increase the content of organic matter. Increasing the content of organic matter improves the available water capacity of the soil. Crops respond well to sufficient applications of lime and fertilizer.

This soil is moderately well suited to hay and pasture. The sandy texture, and potential for droughtiness in mid-summer are the main management concerns. Because plant growth commonly is limited during mid-summer, overgrazing at this time may deplete the stand of pasture grasses. Using proper stocking rates, rotating livestock grazing, deferring grazing as needed, controlling brush and weeds, applying a sufficient amount of lime and fertilizer, and seeding drought-tolerant species improve the quality and increase the quantity of pasture plants.

The potential productivity of this soil for sugar maple is moderately high. The hazard of off-road or off-trail erosion and the hazard of erosion on roads and trails is slight. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival.

The depth to saturated zone is the main limitation if this soil is used as a site for dwellings with basements. Where outlets are available, installation of drains around footings and sealing foundations and basement walls, help to prevent excessive wetness in basements.

The depth to saturated zone and frost action are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems help to overcome these limitations.

The depth to saturated zone and poor filtering capacity are limitations if this soil is used as a site for septic tank absorption fields, particularly in the spring. Care is needed to prevent the contamination of the ground water resulting from the rapid permeability in the subsoil and substratum. Sloughing and the caving in of the unstable sandy material are limitations affecting excavations. Installing a drainage system in the area around the absorption field helps to overcome the seasonal wetness.

The capability subclass is 2w.

# 42B—Elnora fine sandy loam, 3 to 8 percent slopes

This soil is gently sloping, very deep, and moderately well drained. It is in undulating areas on lowland lake plains and in dissected areas on the side slopes of the major valleys. Individual areas are oblong or irregularly shaped, and range from 5 to 30 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 7 inches, very dark grayish brown fine sandy loam

Subsoil:

7 to 16 inches, strong brown friable, loamy fine sand

16 to 27 inches, yellowish brown friable loamy fine sand, with strong brown iron accumulations

Substratum:

27 to 30 inches, brown loose fine sand, with yellowish brown iron accumulations, and 10 percent gravel

30 to 72 inches, grayish brown loose fine sand, with yellowish brown iron accumulations, and 2 percent gravel

Included in mapping are small areas of the somewhat poorly drained Minoa soils along drainageways and in slight depressions. Also included are spots of the well drained Colonie soils on small knolls and slightly higher positions on the landscape, and small areas of soils that have an increased content of clay, occurring in bands or thin layers, in the subsoil. Included areas make up about 15 to 25 percent of this unit.

#### Soil properties—

Permeability: Moderately rapid in the surface layer and rapid in the subsoil and substratum

Available water capacity: Low to moderate

Soil reaction: Extremely acid to slightly acid in the surface layer and subsoil, and

strongly acid to neutral in the substratum

Water table: At a depth of 1.5 to 2.0 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are used for cultivated crops grown in support of dairy farming. Some of the acreage is idle land. Small woodlots are in some areas. This soil meets the requirements for prime farmland.

This soil is moderately well suited to cultivated crops and to early season vegetables. It is limited by droughtiness in mid-summer and by low natural fertility. This stone-free soil generally can be easily tilled. Minimizing tillage, growing cover crops, incorporating crop residue into the soil, and including sod crops in the cropping system help to maintain tilth, and increase the content of organic matter. Increasing the content of organic matter improves the available water capacity of the soil. Crops respond well to sufficient applications of lime and fertilizer.

This soil is moderately well suited to hay and pasture. The sandy texture, and potential for droughtiness in mid-summer are the main management concerns. Plant growth commonly is limited during mid-summer, and overgrazing at this time can deplete the stand of pasture grasses. Using proper stocking rates, rotating livestock grazing, deferring grazing as needed, controlling brush and weeds, applying a sufficient amount of lime and fertilizer, and seeding drought-tolerant species improve the quality and increase the quantity of pasture plants.

The potential productivity of this soil for sugar maple is moderately high. The hazard of off-road or off-trail erosion is slight, and the hazard of erosion on roads and trails is moderate. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival.

The depth to saturated zone is the main limitation if this soil is used as a site for dwellings with basements. Where outlets are available, installing drains around footings and sealing foundations and basement walls help to prevent excessive wetness in basements.

The depth to saturated zone and frost action are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems help to overcome these limitations.

The depth to saturated zone and poor filtering capacity are limitations if this soil is used as a site for septic tank absorption fields, particularly in early spring. Care is needed to prevent the contamination of the ground water resulting from the rapid permeability in the subsoil and substratum. Sloughing and the caving in of the unstable sandy material are limitations affecting excavations. Installing a drainage

system in the area around the absorption field helps to overcome the seasonal wetness. Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 2w.

## 43—Canandaigua silt loam

This soil is very deep, nearly level, and poorly drained. It is mainly in low areas in the major valleys, and to a lesser extent, in depressions on former lake plains. Individual areas are oblong. They generally range from 10 to 50 acres in size, but some are as large as 100 acres or more. Slopes generally are smooth and range from 0 to 3 percent.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface laver:

0 to 9 inches, very dark gray silt loam

Subsoil:

9 to 18 inches, gray friable silty clay loam, with strong brown and yellowish brown iron accumulations

18 to 32 inches, gray friable silty clay loam, with yellowish brown iron accumulations and gray iron depletions

Substratum:

32 to 44 inches, gray friable silty clay loam, with yellowish brown iron accumulations and grayish brown iron depletions

44 to 72 inches, yellowish brown, grayish brown, and gray friable silt loam

Included in mapping are small areas of the somewhat poorly drained Niagara soils in the slightly higher positions on the landscape; the poorly drained Lamson soils which have more sand in the subsoil than the Canandaigua soil; the poorly drained Canadice soils which have more clay in the subsoil than the Canandaigua soil; and the very poorly drained Canandaigua soils that have a mucky surface layer, and are in small depressions. Also included are the poorly drained Getzville soils which are underlain with sand and gravel. Included areas make up about 15 to 25 percent of this unit.

#### Soil properties—

Permeability: Moderate in the surface layer, moderately slow in the subsoil and substratum

Available water capacity: High

Soil reaction: Moderately acid to slightly alkaline in the surface layer and subsoil, and slightly acid to moderately alkaline in the substratum

Water table: At the surface or to a depth of 0.5 feet

from September through June

Flooding hazard: None

Depth to bedrock: More than 6 feet

Ponding hazard: As much as 0.5 feet above the surface from October through May

Most of the acreage is idle land that supports water-tolerant grasses, brush, and trees. Cleared areas are used for low-quality hay or pasture. This soil meets the requirements for hydric soils.

Unless drained, this soil is poorly suited to cultivated crops. If drained, this soil is suited to most of the crops commonly grown in the county, except for early and late season crops. Good tilth can be maintained fairly easily. The soil is subject to puddling and compaction if it is tilled when wet. Growing cover crops, incorporating crop

residue into the soil, tilling only when the soil is at the proper moisture content, and rotating crops helps to maintain tilth and increase the content of organic matter.

This soil is marginally suited to water-tolerant hay and to late-spring pasture. It should not be used as pasture early in spring because compaction can damage desirable plants and result in ponding. Using proper stocking rates, rotating livestock grazing, controlling weeds and brush by mowing annually, and restricting grazing when the soil is wet are the main management concerns.

The potential productivity of this soil for red maple is moderately high. The hazard of off-road or off-trail erosion and the hazard of erosion on roads and trails is slight. The potential for seedling mortality is high. The seasonal wetness increases the seedling mortality rate. Tree species that can withstand the seasonal wetness grow best.

Depth to saturated zone and ponding are the main management concerns if this soil is used as a site for dwellings with basements. Building on raised fill material and installing a drainage system reduce the wetness. The soil is generally too wet for the construction of dwellings with basements without major modifications. Included areas of the somewhat poorly drained Niagara soils may be better suited. Depth to saturated zone and ponding are the main management concerns on sites for local roads and streets. Frost action is also a limitation for this use. Building on raised fill material and installing a drainage system reduce the wetness and the potential for frost action.

Ponding, depth to saturated zone, and the restricted permeability in the subsoil and substratum are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Adjacent areas that are more suitable should be considered for locating septic tank absorption fields.

In many areas this soil is well suited to wetland wildlife habitat and to the development of recreational ponds.

The capability subclass is 4w.

# 44—Canandaigua mucky silt loam

This soil is very deep, nearly level, and very poorly drained. It is mainly in low areas in the major valleys, and to a lesser extent, in depressions on former lake plains. Individual areas are oblong or irregularly shaped. They commonly range from 10 to 75 acres in size. Slopes generally are smooth and range from 0 to 3 percent.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 9 inches, very dark gray mucky silt loam

Subsoil:

9 to 22 inches, gray friable silty clay loam, with strong brown and yellowish brown iron accumulations

22 to 32 inches, gray friable silty clay loam, with yellowish brown iron accumulations and gray iron depletions

Substratum:

32 to 44 inches, gray friable silty clay loam, with yellowish brown iron accumulations and grayish brown iron depletions

44 to 72 inches, yellowish brown, grayish brown, and gray friable silt loam

Included in mapping are small areas of Alden soils, which have rock fragments in the lower part of the subsoil and in the substratum, and a few small pockets of Palms muck which have over 16 inches of muck. Also included are the poorly drained

Getzville soils which are underlain with sand and gravel. Included areas make up about 10 to 20 percent of this unit.

#### Soil properties—

Permeability: Moderate in the surface layer, moderately slow in the subsoil and substratum

Available water capacity: High

Soil reaction: Moderately acid to slightly alkaline in the surface layer and subsoil, and

slightly acid to moderately alkaline in the substratum *Water table:* At or above the surface throughout the year

Flooding hazard: None

Depth to bedrock: More than 6 feet

Ponding hazard: As much as 1.0 feet above the surface from October through May, and as much as 0.5 feet above the surface from June through September

Most of the acreage is idle land that supports water-tolerant shrubs and trees. Some areas used for pasture. This soil meets the requirements for hydric soils.

This soil is generally unsuited to cultivated crops, hay, or pasture due to the water table being at or above the surface throughout most of the year.

The potential productivity of this soil for red maple is moderate. The hazard of offroad or off-trail erosion and the hazard of erosion on roads and trails is slight. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand the seasonal wetness grow best.

Depth to saturated zone and ponding are the main management concerns on sites for dwellings with basements. The soil is too wet for the construction of dwellings with basements without major modifications.

Depth to saturated zone and ponding are the main management concerns on sites for local roads and streets. Frost action is also a limitation for this use. Building on raised fill material and installing a drainage system reduce the wetness and the potential for frost action.

Ponding, depth to saturated zone and the restricted permeability in the subsoil and substratum are management concerns if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. The soil is too wet for use as a site for septic tank absorption fields. Adjacent areas that are more suitable should be considered for locating septic tank absorption fields.

In many areas this soil is well suited to wetland wildlife habitat and to the development of recreational ponds.

The capability subclass is 5w.

# 45—Canandaigua silt loam, acid substratum

This soil is very deep, nearly level, and poorly drained. It is mainly in low areas in the major valleys, and to a lesser extent, in depressions on former lake plains in the southern parts of the county. Individual areas are oblong. They generally range from 10 to 50 acres in size. Slopes generally are smooth and range from 0 to 3 percent.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 8 inches, very dark gray silt loam

Subsoil:

8 to 21 inches, gray friable silty clay loam, with strong brown and yellowish brown iron accumulations

21 to 32 inches, gray friable silty clay loam, with yellowish brown iron accumulations and gray iron depletions

Substratum:

32 to 44 inches, gray friable silty clay loam, with yellowish brown iron accumulations and grayish brown iron depletions

44 to 72 inches, yellowish brown, grayish brown, and gray friable silt loam

Included in mapping are small areas of the somewhat poorly drained Niagara soils in the slightly higher positions on the landscape; the poorly drained Lamson soils which have more sand in the subsoil than the Canandaigua soil; the poorly drained Canadice soils which have more clay in the subsoil than the Canandaigua soil; and the very poorly drained Canandaigua soils that have a mucky surface layer, and are in slightly lower landscape positions. Also included are the poorly drained Getzville soils which are underlain with sand and gravel. Included areas make up about 15 to 25 percent of this unit.

#### Soil properties—

Permeability: Moderate in the surface layer, moderately slow in the subsoil and substratum

Available water capacity: High

Soil reaction: Moderately acid to slightly alkaline in the surface layer and subsoil, and

moderately acid to neutral in the substratum *Water table:* At the surface or to a depth of 0.5 feet

from September through June

Flooding hazard: None

Depth to bedrock: More than 6 feet

Ponding hazard: As much as 0.5 feet above the surface from October through May

Most of the acreage is idle land that supports water-tolerant grasses, brush, and trees. Cleared areas are used for low-quality hay or pasture. This soil meets the requirements for hydric soils.

Unless drained, this soil is poorly suited to cultivated crops. If drained, this soil is suited to most of the crops commonly grown in the county, except for early and late season crops. The soil is subject to puddling and compaction if it is tilled when wet. Good tilth can be maintained fairly easily. Growing cover crops, incorporating crop residue into the soil, tilling only when the soil is at the proper moisture content, and rotating crops helps to maintain tilth.

This soil is marginally suited to water-tolerant hay and to late-spring pasture. It should not be used as pasture early in spring because compaction can damage desirable plants and result in ponding. Using proper stocking rates, rotating livestock grazing, controlling weeds and brush by mowing annually and restricting grazing when the soil is wet are the main management concerns. Improving drainage increases forage production.

The potential productivity of this soil for sugar maple is moderately high. The hazard of off-road or off-trail erosion and the hazard of erosion on roads and trails are slight. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand the seasonal wetness grow best.

Depth to saturated zone and ponding are the main management concerns if this soil is used as a site for dwellings with basements. The soil is too wet for the construction of dwellings with basements without major modifications. Included areas of the somewhat poorly drained Niagara soils may be better sites.

Depth to saturated zone and ponding are the main management concerns if this soil is used as a site local roads and streets. Frost action is also a limitation for this use. Building on raised fill material and installing a drainage system reduce the wetness and the potential for frost action.

Ponding, depth to saturated zone and the restricted permeability in the subsoil and substratum are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Adjacent areas that are more suitable should be considered for locating septic tank absorption fields.

In many areas this soil is well suited to wetland wildlife habitat and to the development of recreational ponds.

The capability subclass is 4w.

### 46—Swormville silt loam

This soil is nearly level, very deep, and somewhat poorly drained. It is mainly on broad flats in the larger valleys, but is also in low areas on former lake plains. Individual areas are oblong. They range mainly from 20 to 50 acres in size, but some are as large as 100 acres or more. Slopes generally are smooth and range from 0 to 3 percent.

The typical sequence, depth, and composition of the layers of this soil are as follows— Surface layer:

0 to 8 inches, very dark grayish brown silt loam with 2 percent gravel

#### Subsoil:

8 to 19 inches, brown friable silt loam, with strong brown iron accumulations and grayish brown iron depletions and 2 percent gravel

19 to 31 inches, brown slightly firm silt loam, with yellowish brown iron accumulations and gray iron depletions and 2 percent gravel

#### Substratum:

31 to 35 inches, grayish brown friable sandy loam, with strong brown and yellowish brown iron accumulations and 5 percent gravel

35 to 52 inches, grayish brown very friable loamy sand, with yellowish brown iron accumulations and gray iron depletions and 10 percent gravel

52 to 72 inches, grayish brown loose sand, with 10 percent gravel

Included in mapping are small areas of the poorly drained Getzville soils in slight depressions and along drainageways; Minoa and Lamson soils, which are sandy throughout; and moderately well drained Olean soils in the slightly higher positions on the landscape. Also included in slightly higher positions are the Tonawanda soils which are silty throughout the profile. Included areas make up about 10 to 20 percent of this unit.

#### Soil properties—

*Permeability:* Moderately slow in the surface layer, slow or moderately slow in the subsoil, and moderately rapid in the substratum

Available water capacity: Moderate to high

Soil reaction: Strongly acid to neutral in the surface layer, moderately acid to neutral

in the subsoil and slightly acid to slightly alkaline in the substratum *Water table:* At a depth of 0.5 to 1.5 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most of the acreage is used for row crops grown in support of dairy farming. Some of the acreage is used for vegetables. The rest is idle land or woodland. Where drained, this soil meets the requirements for prime farmland (fig. 7).

This soil is moderately well suited to cultivated crops and vegetables. The seasonal high water table may delay planting and can make harvesting difficult, especially in low areas. If a drainage system is installed, the soil is suited to most of the crops



Figure 7.—Improved pasture in an area of Swormville silt loam. Where drained, this soil is considered prime farmland.

commonly grown in the county. In most areas where outlets are available, drainage can be improved by a combination of open ditches and subsurface drains. Because of the moderately rapid permeability in the sandy substratum, tile drains do not have to be closely spaced. The soil is subject to puddling and compaction if it is tilled when wet. Growing cover crops, minimizing tillage, incorporating crop residue into the soil, and including sod crops in the cropping system help to maintain tilth, increase the content of organic matter, and minimize surface crusting and clodding.

This soil is well suited to water-tolerant hay and to late-spring pasture. Overgrazing and grazing when the soil is wet are the main management concerns. Overgrazing damages the pasture plants, and grazing when the soil is wet can result in surface compaction and damage to the pasture. Using proper stocking rates, rotating livestock grazing, controlling weeds and brush, and restricting grazing when the soil is wet are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion and the hazard of erosion on roads and trails are slight. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand the seasonal wetness grow best.

The depth to saturated zone is the main limitation on sites for dwellings with basements. Where outlets are available, installing drains around footings and sealing foundations and basement walls help to prevent excessive wetness in basements.

The depth to saturated zone and frost action are the main limitations if this soil is used as a site for roads and streets. Adding coarse textured subgrade or base material, and installing roadside drainage systems, help to overcome these limitations.

The depth to saturated zone and restricted permeability are limitations if this soil is used as a site for septic tank absorption fields, particularly in early spring. Care is needed to prevent the contamination of ground water resulting from seepage. Installing a drainage system in the area around the absorption field helps to

overcome the seasonal wetness. Sloughing and caving in of the unstable silty material are limitations affecting excavations.

The capability subclass is 3w.

## 47A—Minoa very fine sandy loam, 0 to 3 percent slopes

This soil is nearly level, very deep, and somewhat poorly drained. It is on broad flats on former lake plains and on lowlands in the larger valleys. Individual areas are oblong or irregularly shaped, and range from 5 to 50 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 9 inches, very dark grayish brown very fine sandy loam with less than 2 percent gravels

Subsoil:

9 to 20 inches, brown friable fine sandy loam, with strong brown iron accumulations and grayish brown iron depletions, and less than 2 percent gravel

20 to 32 inches, yellowish brown very friable fine sandy loam, with strong brown iron accumulations and grayish brown iron depletions, and less than 2 percent gravel

32 to 36 inches, grayish brown loose sandy loam, with yellowish brown iron accumulations, and less than 2 percent gravel

Substratum:

36 to 72 inches, grayish brown loose stratified fine sandy loam and fine sand, with less than 2 percent gravel

Included in mapping are small areas of the poorly drained Lamson soils in slight depressions and along drainageways, and small areas of the moderately well drained Elnora soils on small knolls or slightly higher positions on the landscape. Also included are small areas of Tonawanda soils which are silty throughout the profile, and soils that are similar to the Minoa soil that have a surface layer of silt loam. Included areas make up about 15 to 25 percent of the unit.

#### Soil properties—

Permeability: Moderate in the surface layer and subsoil, moderate or moderately rapid in the substratum

Available water capacity: Moderate to high

Soil reaction: Strongly acid to neutral in the surface layer, from moderately acid to neutral in the subsoil, and moderately acid to moderately alkaline in the substratum

Water table: At a depth of 0.5 to 1.5 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are used for row crops grown in support of dairy farming. Some of the acreage is idle land. Small woodlots are in some areas. Where drained, this soil meets the requirements for prime farmland.

This soil is moderately well suited to cultivated crops commonly grown in the county. The seasonal high water table may delay planting and make harvesting difficult, especially in low lying areas. If a drainage system is installed, the soil is suited to most of the crops commonly grown in the county. A combination of open ditches and subsurface drains generally is effective in areas where outlets are available. Because of the sandy substratum, drains do not have to be closely spaced. Generally, this relatively stone free soil can be easily tilled, but tilth and soil structure deteriorate if the soil is plowed when wet. Minimizing tillage, growing cover crops,

incorporating crop residue into the soil, and including sod crops in the cropping system help to maintain tilth and increase the content of organic matter.

This soil is well suited to water-tolerant hay and to late-spring pasture. Overgrazing and grazing when the soil is wet are the main management concerns. Overgrazing damages the pasture plants, and grazing when the soil is wet can result in surface compaction and damage to the pasture. Using proper stocking rates, rotating livestock grazing, controlling brush and weeds, and restricting grazing when the soil is wet are the main management concerns.

The potential productivity of this soil for red maple is moderately high. The hazard of off-road or off-trail erosion and the hazard of erosion on roads and trails are slight. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand the seasonal wetness grow best.

The depth to saturated zone is the main limitation if this soil is used as a site for dwellings with basements. Where outlets are available, installing drains around footings and sealing foundations and basement walls help to prevent excessive wetness in basements.

The depth to saturated zone and frost action are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material, and installing roadside drainage systems help to overcome these limitations.

The depth to saturated zone is a limitation if this soil is used as a site for septic tank absorption fields, particularly in early spring. Installing a drainage system in the area around the absorption field helps to overcome the seasonal wetness. Sloughing and the caving of the unstable sandy material are limitations affecting excavation.

The capability subclass is 3w.

## 48A—Colonie fine sandy loam, 0 to 3 percent slopes

This soil is nearly level, very deep, and well drained. It is in undulating areas in the major valleys and along valley sides. Individual areas are oblong or irregularly shaped, and range from 5 to 40 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 9 inches, dark grayish brown fine sandy loam

Subsoil:

9 to 16 inches, strong brown very friable loamy fine sand

16 to 32 inches, brown very friable loamy fine sand

32 to 47 inches, dark yellowish brown very friable loamy fine sand, with thin bands of fine sandy loam

Substratum:

47 to 51 inches, brown loose loamy fine sand with 5 percent gravel 51 to 72 inches, brown loose fine sand

Included in mapping are small areas of the moderately well drained Elnora soils along drainageways, the somewhat poorly drained Minoa soils in slight depressions, and soils that have a surface layer of loamy fine sand or have a gravelly surface layer. Also included are small areas of Chenango soils which have more gravel in the profile than Colonie soils. Included areas make up about 15 to 25 percent of the unit.

#### Soil properties—

Permeability: Moderately rapid in the surface layer and moderately rapid or rapid in the subsoil and substratum

Available water capacity: Low to moderate

Soil reaction: Very strongly acid to slightly acid in the surface layer and subsoil,

moderately acid to neutral in the substratum Water table: At a depth of more than 6 feet

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are used for cultivated crops in support of dairy farming. Some of the acreage is idle land. Small woodlots are in some areas. This soil meets the requirements for prime farmland.

This soil is well suited to cultivated crops and to early-season vegetables. Crop growth is restricted by droughtiness in midsummer and by low natural fertility. This stone-free soil generally can be easily tilled. Wind erosion is a hazard where the plant cover has been removed. Minimizing tillage, growing cover crops, adding animal manure to the soil, incorporating crop residue, and including sod crops in the cropping system increase the content of organic matter and help to maintain tilth.

Because of a very low content of organic matter, droughtiness, and the sandy texture, this soil is only moderately well suited to hay and pasture. Some areas can be used for early season pasture, but plant growth commonly is limited during midsummer. Overgrazing in summer can deplete the stand of pasture grasses. Using proper stocking rates, rotating livestock grazing, controlling weeds and brush, and applying the proper kinds and amounts of lime and fertilizer are the main management concerns.

The potential productivity of this soil for sugar maple is moderately high. The hazard of off-road or off-trail erosion and the hazard of erosion on roads and trails are slight. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival.

This soil has few limitations as a site for dwellings with basements and for local roads and streets.

Poor filtering capacity is a limitation if this soil is used as a site for septic tank absorption fields. Care is needed to prevent the contamination of ground water resulting from the rapid permeability in the subsoil and substratum. Because the soil is loose, the sides of excavations or cuts may tend to slough or slump.

The capability class is 2s.

# 48B—Colonie fine sandy loam, 3 to 8 percent slopes

This soil is gently sloping, very deep, and well drained. It is in undulating areas in the major valleys and along valley sides. Individual areas are oblong or irregularly shaped, and range from 5 to 40 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows-

Surface laver:

0 to 9 inches, dark grayish brown fine sandy loam

Subsoil:

9 to 16 inches, strong brown very friable loamy fine sand

16 to 32 inches, brown very friable loamy fine sand

32 to 47 inches, dark yellowish brown very friable loamy fine sand, with thin bands of fine sandy loam

Substratum:

47 to 51 inches, brown loose loamy fine sand with 5 percent gravel

51 to 72 inches, brown loose fine sand

Included in mapping are small areas of the moderately well drained Elnora soils along drainageways, the somewhat poorly drained Minoa soils in slight depressions, and soils that have a surface layer of loamy fine sand or have a gravelly surface layer. Also included are small areas of Chenango soils which have more gravel in the profile than Colonie soils. Included areas make up about 15 to 25 percent of the unit.

#### Soil properties—

Permeability: Moderately rapid in the surface layer, and moderately rapid or rapid in the subsoil and substratum

Available water capacity: Low to moderate

Soil reaction: Very strongly acid to slightly acid in the surface layer and subsoil,

moderately acid to neutral in the substratum *Water table:* At a depth of more than 6 feet

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are used for cultivated crops in support of dairy farming. Some of the acreage is idle land. Small woodlots are in some areas. This soil meets the requirements for prime farmland.

This soil is well suited to cultivated crops and to early-season vegetables. However, Crop growth is restricted by droughtiness in midsummer and by low natural fertility. This stone-free soil generally can be easily tilled. Water erosion is a hazard on long slopes and where the soil is intensively cultivated. Wind erosion is a hazard where the plant cover has been removed. Minimizing tillage, growing cover crops, adding animal manure to the soil, incorporating crop residue, and including sod crops in the cropping system increase the content of organic matter and help to maintain tilth.

Because of a very low content of organic matter, droughtiness, and the sandy texture, this soil is only moderately well suited to hay and pasture. Some areas can be used for early season pasture, but plant growth commonly is limited during midsummer. Overgrazing in summer can deplete the stand of pasture grasses. Using proper stocking rates, rotating livestock grazing, controlling weeds and brush, and applying the proper kinds and amounts of lime and fertilizer are the main management concerns.

The potential productivity of this soil for sugar maple is moderately high. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails are moderate. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival.

This soil has few limitations as a site for dwellings with basements and for local roads and streets.

Poor filtering capacity is a limitation if this soil is used as a site for septic tank absorption fields. Care is needed to prevent the contamination of ground water resulting from the rapid permeability in the subsoil and substratum. Because the soil is loose, the sides of excavations or cuts may tend to slough or slump.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability class is 2s.

# 48C—Colonie fine sandy loam, 8 to 15 percent slopes

This soil is strongly sloping, very deep, and well drained. It is on side slopes in dissected areas of the major valleys. Individual areas are oblong or irregularly shaped, and range from 5 to 40 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 9 inches, dark grayish brown fine sandy loam

#### Subsoil:

9 to 16 inches, strong brown very friable loamy fine sand

16 to 32 inches, brown very friable loamy fine sand

32 to 47 inches, dark yellowish brown very friable loamy fine sand, with thin bands of fine sandy loam

#### Substratum:

47 to 51 inches, brown loose loamy fine sand with 5 percent gravel 51 to 72 inches, brown loose fine sand

Included in mapping are small areas of the moderately well drained Elnora soils along drainageways, the somewhat poorly drained Minoa soils in slight depressions, and soils that have a surface layer of loamy fine sand or have a gravelly surface layer. Also included are small areas of Chenango soils which have more gravel in the profile than Colonie soils. Included areas make up about 15 to 25 percent of the unit.

#### Soil properties—

Permeability: Moderately rapid in the surface layer, and moderately rapid or rapid in the subsoil and substratum

Available water capacity: Low to moderate

Soil reaction: Very strongly acid to slightly acid in the surface layer and subsoil,

moderately acid to neutral in the substratum

Water table: At a depth of more than 6 feet

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are used for cultivated crops in support of dairy farming. Some of the acreage is idle land. Small woodlots are in some areas.

This soil is only moderately well suited to cultivated crops because of the slope, droughtiness in midsummer, and low natural fertility. Water erosion is a hazard particularly on long slopes and in intensively cultivated areas. Wind erosion is a hazard in areas where the plant cover has been removed. This stone-free soil generally can be easily tilled. Minimizing tillage, growing cover crops, adding animal manure to the soil, incorporating crop residue, and including sod crops in the cropping system increase the content of organic matter and help to maintain tilth. Farming on the contour and stripcropping help to control erosion and increase the supply of moisture in the soil.

Because of a very low content of organic matter, droughtiness, and the sandy texture, this soil is only moderately well suited to hay and pasture. Some areas can be used for early season pasture, and plant growth commonly is limited during midsummer. Overgrazing in summer can deplete the stand of pasture grasses and increase the hazard of erosion. Using proper stocking rates, rotating livestock grazing, controlling weeds and brush, and applying the proper kinds and amounts of lime and fertilizer are the main management concerns.

The potential productivity of this soil for sugar maple is moderately high. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival.

The slope is the main limitation if this soil is used as a site for dwellings with basements and for local roads and streets. Land grading and building on the contour help to overcome the slope limitation.

Poor filtering capacity is a limitation if this soil is used as a site for septic tank absorption fields. Care is needed to prevent the contamination of ground water resulting from the rapid permeability in the subsoil and substratum. Because the soil is loose, the sides of excavations or cuts may tend to slough or slump.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 3e.

## 49A—Red Hook silt loam, 0 to 3 percent slopes

This soil is nearly level, very deep, and somewhat poorly drained. It is on low flats of outwash plains and older stream terraces. Individual areas are oblong or irregularly shaped and range from 10 to 50 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 9 inches, very dark grayish brown silt loam with 10 percent gravel

Subsoil:

9 to 21 inches, brown friable gravelly loam, with yellowish brown iron accumulations and grayish brown iron depletions, and 20 percent gravel

21 to 32 inches, dark grayish brown friable gravelly sandy loam, with yellowish brown iron accumulations and grayish brown iron depletions, and 30 percent gravel

Substratum:

32 to 72 inches, dark grayish brown loose very gravelly sandy loam, with 45 percent gravel

Included in mapping are small areas of the very poorly drained Halsey soils and poorly drained Lamson soils in slight depressions and along drainageways; small areas of the moderately well drained Castile soils on small knolls and in the slightly higher positions on the landscape. Lamson soils are sandy and lack the gravel associated with Red Hook soils. Also included are small areas of Red Hook soils that have a thin mantle of gravel-free silty material or that have a channery or gravelly surface layer. Included areas make up about 10 to 20 percent of this unit.

#### Soil properties—

Permeability: Moderate in the surface layer and subsoil, moderate or moderately rapid in the substratum

Available water capacity: Low to high

Soil reaction: Strongly acid to slightly acid in the surface layer, moderately acid to neutral in the subsoil, moderately acid to slightly alkaline in the substratum

Water table: At a depth of 0.5 to 1.5 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are used for row crops grown in support of dairy farming. Some of the acreage is idle land. Small woodlots are in some areas. Where drained, this soil meets the requirements for prime farmland.

This soil is moderately well suited to cultivated crops commonly grown in the county. The seasonal high water table may delay planting and can make harvesting difficult, especially in low areas. If a drainage system is installed, the soil is suited to the crops commonly grown in the county. A combination of open ditches and subsurface drains generally is effective in areas where outlets are available. Generally, this soil can be easily tilled, but tilth and soil structure deteriorate if the soil is plowed when wet. Minimizing tillage, growing cover crops, incorporating crop residue into the soil, and including sod crops in the cropping system help to maintain tilth and increase the content of organic matter.

The soil is well suited to water-tolerant hay and to late-spring pasture. Overgrazing and grazing when the soil is wet are the main management concerns. Overgrazing

damages the pasture plants, and grazing when the soil is wet can result in surface compaction and damage to the pasture. Using proper stocking rates, rotating livestock grazing, controlling weeds and brush, and restricted grazing when the soil is wet are the main management concerns.

The potential productivity of this soil for red maple is moderately high. The hazard of off-road or off-trail erosion and the hazard of erosion on roads and trails are slight. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand seasonal wetness grow best.

The depth to saturated zone is the main limitation if this soil is used as a site for dwellings with basements. Where outlets are available, installing drains around footings and sealing foundations and basement walls help to prevent excessive wetness in basements.

The depth to saturated zone and frost action are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems help to overcome these limitations.

The depth to saturated zone and the restricted permeability in the substratum are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Installing drainage system in the area around the absorption fields and adding permeable fill material help to overcome the seasonal wetness and the restricted permeability.

The capability subclass is 3w.

### 50A—Canaseraga silt loam, 0 to 3 percent slopes

This soil is nearly level, very deep, and moderately well drained. It is in convex areas on hilltops that receive little or no runoff from the higher adjacent soils, and in flatter areas of toeslopes that receive runoff from the higher adjacent soils. Individual areas are oblong or circular, and range from 10 to 50 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 5 inches, dark brown silt loam

Subsoil:

5 to 9 inches, strong brown very friable silt loam

9 to 18 inches, yellowish brown friable silt loam

18 to 23 inches, brown friable silt loam, with brown iron accumulations

23 to 28 inches, brown firm silt loam, with strong brown iron accumulations and light brownish gray iron depletions and 5 percent gravels

28 to 53 inches, olive brown very firm channery silt loam, with yellowish brown iron accumulations and grayish brown iron depletions and 20 percent gravels

#### Substratum:

53 to 72 inches, dark grayish brown firm channery silt loam, with dark yellowish brown iron accumulations and 25 percent gravels and channers

Included in mapping are small areas of the somewhat poorly drained Dalton soils in small depressions and along drainageways; Schuyler soils, which do not have a fragipan; Mardin soils which lack the silty mantle; and soils having a silty mantle that is less than 15 inches thick. Included areas make up about 10 to 20 percent of this unit.

#### Soil properties—

Permeability: Moderate in the surface layer and in the upper part of subsoil, slow or very slow in the fragipan and substratum

Available water capacity: Low to moderate

Soil reaction: Very strongly acid to moderately acid in the surface layer and upper subsoil, strongly acid to neutral in the fragipan, moderately acid to moderately alkaline in the substratum

Water table: Perched at a depth of 1.2 to 1.9 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are used for row crops, hay, and pasture used in support of dairy operations. Some areas are used as woodland. This soil meets the requirements for prime farmland.

This soil is well suited to most of the crops grown in the county, but wetness may delay planting early in the spring. Random tile drains are needed in the wetter included soils so that the fields can be managed more uniformly. Measures that maintain tilth, increase the content of organic matter, and control erosion include minimum tillage, tilling only when the soil is at the proper moisture content, incorporating crop residue into the soil, and growing cover crops. The plow layer commonly has no stones and can be easily tilled. Crops respond well to applications of lime and fertilizer.

This soil is suitable for hay and pasture. Overgrazing and grazing when the soil is wet may compact the surface layer and cause temporary ponding. Topdressing with lime and fertilizer, using proper stocking rates, rotating livestock grazing, and controlling weeds and brush by mowing annually are the main management concerns.

The potential productivity of this soil for sugar maple is moderately high. The hazard of off-road or off-trail erosion and the hazard of erosion on roads and trails are slight. The potential for seedling mortality is low. Planting seedlings in spring, when the soil is moist, helps to ensure their survival.

The depth to saturated zone is the main limitation if this soil is used as a site for dwelling with basements. Installing drains around footings and sealing foundations and basement walls help to prevent excessive wetness in basements.

Frost action and depth to saturated zone are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems help to overcome these limitations.

The depth to saturated zone, depth to dense material, and restricted permeability are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system in the area around the absorption field and adding permeable fill material help to overcome the seasonal wetness and the restricted permeability.

The capability subclass is 2w.

# 50B—Canaseraga silt loam, 3 to 8 percent slopes

This soil is gently sloping, very deep, and moderately well drained. It is in convex areas on hilltops that receive little or no runoff from the higher adjacent soils, and in flatter areas of toe slopes that receive runoff from the higher adjacent soils. Individual areas are oblong or circular, and range from 10 to 50 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 5 inches, dark brown silt loam

Subsoil:

5 to 9 inches, strong brown very friable silt loam

9 to 18 inches, yellowish brown friable silt loam

18 to 23 inches, brown friable silt loam, with brown iron accumulations

23 to 28 inches, brown firm silt loam, with strong brown iron accumulations and light brownish gray iron depletions and 5 percent gravels

28 to 53 inches, olive brown very firm channery silt loam, with yellowish brown iron accumulations and grayish brown iron depletions and 20 percent gravels

#### Substratum:

53 to 72 inches, dark grayish brown firm channery silt loam, with dark yellowish brown iron accumulations and 25 percent gravels and channers

Included in mapping are small areas of the somewhat poorly drained Dalton soils in small depressions and along drainageways; Schuyler soils, which do not have a fragipan; Mardin soils which lack the silty mantle; and soils having a silty mantle that is less than 15 inches thick. Included areas make up about 10 to 20 percent of this unit.

#### Soil properties—

Permeability: Moderate in the surface layer and in the upper part of subsoil, slow or very slow in the fragipan and substratum

Available water capacity: Low to moderate

Soil reaction: Very strongly acid to moderately acid in the surface layer and upper subsoil, strongly acid to neutral in the fragipan, moderately acid to moderately alkaline in the substratum

Water table: Perched at a depth of 1.2 to 1.9 feet from November through May Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are used for row crops, hay, and pasture used in support of dairy operations. Some areas are used as woodland.

This soil is well suited to most of the crops grown in the county, but wetness may delay planting early in the spring. Erosion is a hazard on long slopes. Random tile drains are needed in the wetter included soils so that the fields can be managed more uniformly. Measures that maintain tilth, increase the content of organic matter, and control erosion include minimum tillage, tilling only when the soil is at the proper moisture content, incorporating crop residue into the soil, and growing cover crops. The plow layer commonly has no stones and can be easily tilled. Farming on the contour and stripcropping help to control erosion on long slopes. Crops respond well to applications of lime and fertilizer.

This soil is suitable for hay and pasture. Overgrazing and grazing when the soil is wet, may compact the surface layer and cause temporary ponding. Topdressing with lime and fertilizer, using proper stocking rates, rotating livestock grazing, and controlling weeds and brush by mowing annually are the main management concerns.

The potential productivity of this soil for sugar maple is moderately high. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is moderate. The potential for seedling mortality is low. Planting seedlings in spring, when the soil is moist, helps to ensure their survival.

The depth to saturated zone is the main limitation if this soil is used as a site for dwelling with basements. Installing drains around footings and sealing foundations and basement walls help to prevent excessive wetness in basements.

Frost action and depth to saturated zone are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems help to overcome these limitations.

The depth to saturated zone, depth to dense material, and restricted permeability are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system in the area around the absorption fields

and adding permeable fill material help to overcome the seasonal wetness and the restricted permeability.

This soil is subject to erosion if the plant cover is removed during construction. Minimizing disturbance and revegetating the site as soon as possible can help to control erosion.

The capability subclass is 2e.

## 50C—Canaseraga silt loam, 8 to 15 percent slopes

This soil is strongly sloping, very deep, and moderately well drained. It is in areas on side slopes that receive runoff from the higher adjacent soils. Individual areas are oblong or circular, and range from 5 to 50 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface laver:

0 to 5 inches, dark brown silt loam

#### Subsoil:

5 to 9 inches, strong brown very friable silt loam

9 to 18 inches, yellowish brown friable silt loam

18 to 23 inches, brown friable silt loam, with brown iron accumulations

23 to 28 inches, brown firm silt loam, with strong brown iron accumulations and light brownish gray iron depletions and 5 percent gravels

28 to 53 inches, olive brown very firm channery silt loam, with yellowish brown iron accumulations and grayish brown iron depletions and 20 percent gravels

#### Substratum:

53 to 72 inches, dark grayish brown firm channery silt loam, with dark yellowish brown iron accumulations and 25 percent gravels and channers

Included in mapping are small areas of the somewhat poorly drained Dalton soils in small depressions and along drainageways; Schuyler soils, which do not have a fragipan; Mardin soils which lack the silty mantle; and soils having a silty mantle that is less than 15 inches thick. Included areas make up about 10 to 20 percent of this unit.

#### Soil properties—

Permeability: Moderate in the surface layer and in the upper part of subsoil, slow or very slow in the fragipan and substratum

Available water capacity: Low to moderate

Soil reaction: Very strongly acid to moderately acid in the surface layer and upper subsoil, strongly acid to neutral in the fragipan, moderately acid to moderately alkaline in the substratum

Water table: Perched at a depth of 1.2 to 1.9 feet from November through May Flooding hazard: None

Depth to bedrock: More than 6 feet

Most of the acreage is woodland or idle land. Some areas have been cleared and are used for row crops, hay, or pasture. The row crops are grown in support of dairy farming.

This soil is moderately well suited to most of the crops grown in the county. Wetness may delay planting early in spring and can interfere with harvesting. Careful management is needed to control erosion and maintain fertility. A drainage system is needed on the wetter included soils so that the fields can be managed more uniformly. Contour farming and contour stripcropping in combination with diversions, terraces, or grassed waterways help to control erosion. The plow layer commonly has

few stones and can be easily tilled. Incorporating crop residue into the soil, rotating crops, minimizing tillage, and growing cover crops help to maintain tilth and increase the content of organic matter.

This soil is well suited for hay and pasture. Overgrazing and surface compaction are the main management concerns. Compaction seals the surface and thus increases the runoff rate and the hazard of erosion. Overgrazing results in increased erosion. Forage plants, including deep-rooted legumes, can be grown if lime and fertilizer are applied. Other suitable pasture management practices include using proper stocking rates, rotating livestock grazing, and controlling weeds and brush by mowing annually.

The potential productivity of this soil for sugar maple is moderately high. The hazard of off-road or off-trail erosion is moderate and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings in spring, when the soil is moist, helps to ensure their survival.

The depth to saturated zone and the slope are the main limitations if this soil is used as a site for dwellings with basements. Installing drains around footings and sealing foundations and basement walls help to prevent excessive wetness in basements. Also, installing interceptor drains and diversion ditches in upslope areas divert surface and subsurface water from the dwellings. Land grading and building on the contour help to overcome the slope limitation.

Frost action, depth to saturated zone and slope are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems help to overcome these limitations. Land grading and building on the contour help to overcome the slope limitation.

The depth to saturated zone, depth to dense material, and restricted permeability are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system in the area around the absorption field and adding permeable fill material help to overcome the seasonal wetness and the restricted permeability.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 3e.

# 51B—Chadakoin channery silt loam, 3 to 8 percent slopes

This soil is gently sloping, very deep, and well drained. It is in convex areas on hilltops that receive little or no runoff from higher adjacent soils. Individual areas are oblong and range from 10 to 30 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows— Surface layer:

0 to 4 inches, dark grayish brown channery silt loam with 15 percent channers

#### Subsurface layer:

4 to 9 inches, brown very friable channery silt loam with 15 percent channers

#### Subsoil:

9 to 27 inches, brown very friable channery silt loam, with 15 percent channers 27 to 33 inches, dark yellowish brown friable channery silt loam, with strong brown iron accumulations and 20 percent channers

#### Substratum:

33 to 54 inches, brown friable channery loam, with 25 percent channers 54 to 72 inches, grayish brown friable very channery loam, with 40 percent channers

Included in mapping are small areas of the moderately well drained Chautauqua soils; the moderately well drained Schuyler soils, which have more clay in the subsoil than the Chadakoin soil; Valois soils, which have more gravel in the substratum; and Towerville soils which have bedrock within 40 inches. Included areas make up about 10 to 20 percent of this unit.

#### Soil properties—

Permeability: Moderate in the surface layer and upper part of the subsoil, and moderately slow or moderate in the lower part of the subsoil and in the substratum Available water capacity: Low to high

Soil reaction: Very strongly acid to moderately acid in the surface layer and subsoil, and strongly acid to slightly acid in the substratum

Water table: At a depth of 2.0 to 6.0 feet from

November through May Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas have been cleared and are used for row crops, alfalfa, hay or pasture. The row crops are grown in support of dairy farming. Small woodlots are in some areas, and some of the acreage is idle land that is reverting to shrubs and brush. This soil meets the requirements for prime farmland.

This soil is well suited to all of the crops commonly grown in the county. The crops that are planted early in spring and deep-rooted perennial crops, such as alfalfa, grow especially well. Lime is needed for most crops, especially legumes. Crops respond well to sufficient applications of fertilizer. Erosion is a hazard if the soil is intensively cultivated and is not protected by a plant cover. Incorporating crop residue into the soil, minimizing tillage, and growing cover crops help to maintain tilth and control erosion. Farming on the contour and stripcropping help to control erosion and conserve water during the growing season. In some years droughtiness restricts crop growth.

This soil is well suited to hay and pasture. It is especially suitable for grazing early in the growing season. Overgrazing can restrict plant growth and increase the hazard of erosion. Deep-rooted legumes grow well, but applications of lime and fertilizer are required to maintain the quality of stands and to ensure good plant growth. Using proper stocking rates, rotating livestock grazing, and controlling weeds and brush by mowing annually are the main management concerns.

The potential productivity of this soil for sugar maple is moderately high. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is moderate. The potential for seedling mortality is low. Planting seedlings in spring, when the soil is moist, helps to ensure their survival.

The depth to saturated zone is the main limitation if this soil is used as a site for dwellings with basements. Installing drains around footings and sealing foundations and basement walls help to prevent excessive wetness in basements.

Frost action is the main limitation if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems reduce the potential for frost action.

The depth to saturated zone and the restricted permeability in the lower subsoil and substratum are limitations if this soil is used as a site for septic tank absorption fields. Minimal engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system in the area around the absorption field and adding permeable fill material, help to overcome the seasonal wetness and the restricted permeability.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 2e.

# 51C—Chadakoin channery silt loam, 8 to 15 percent slopes

This soil is strongly sloping, very deep, and well drained. It is in convex areas on hilltops that receive runoff from higher adjacent soils. Individual areas are oblong or rectangular and range from 10 to 75 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 4 inches, dark grayish brown channery silt loam with 15 percent channers

Subsurface layer:

4 to 9 inches, brown very friable channery silt loam with 15 percent channers

Subsoil:

9 to 27 inches, brown very friable channery silt loam, with 15 percent channers 27 to 33 inches, dark yellowish brown friable channery silt loam, with strong brown iron accumulations and 20 percent channers

Substratum:

33 to 54 inches, brown friable channery loam, with 25 percent channers 54 to 72 inches, grayish brown friable very channery loam, with 40 percent channers

Included in mapping are small areas of the moderately well drained Chautauqua soils; the moderately well drained Schuyler soils, which have more clay in the subsoil than the Chadakoin soil; Valois soils, which have more gravel in the substratum; and Towerville soils which have bedrock within 40 inches. Included areas make up about 10 to 20 percent of this unit.

#### Soil properties—

Permeability: Moderate in the surface layer and upper part of the subsoil, and moderately slow or moderate in the lower part of the subsoil and in the substratum

Available water capacity: Low to high

Soil reaction: Very strongly acid to moderately acid in the surface layer and subsoil, and strongly acid to slightly acid in the substratum

Water table: At a depth of 2.0 to 6.0 feet from

November through May Flooding hazard: None

Depth to bedrock: More than 6 feet

Most of the acreage is woodland or is idle land that is reverting to shrubs and brush. Some areas have been cleared and are used for row crops, alfalfa, hay or pasture. The row crops are grown in support of dairy farming.

This soil moderately well suited to most of the crops commonly grown in the county. The crops that are planted early in spring and deep-rooted perennial crops, such as alfalfa, grow especially well. Erosion is a serious hazard in intensively cultivated areas. Contour farming and stripcropping in combination with diversions, terraces, or grassed waterways help to control erosion. Incorporating crop residue into the soil, minimizing tillage, including sod crops in the crop rotation, and growing cover crops help to maintain tilth and increase the content of organic matter. Installing drainage in the wetter included areas helps to make management of the fields more efficient. Crops respond well to applications of fertilizer. Legumes respond especially well. In some years droughtiness restricts crop growth.

This soil is well suited to hay and pasture. It is especially suitable for grazing early in the growing season. Overgrazing can restrict plant growth and increase the hazard

of erosion. Deep-rooted legumes grow well, but applications of lime and fertilizer are required to maintain the quality of stands and to ensure good plant growth. Using proper stocking rates, rotating livestock grazing, and controlling weeds and brush by mowing annually are the main management concerns.

The potential productivity of this soil for sugar maple is moderately high. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings in spring, when the soil is moist, helps to ensure their survival. Building skid trails and roads across the slope minimizes gullying along the trails and roads.

The depth to saturated zone and slope are the main limitations if this soil is used as a site for dwellings with basements. Installing drains around footings and sealing foundations and basement walls help to prevent excessive wetness in basements. Land grading and building on the contour help to overcome the slope limitation.

Frost action and slope are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems help to overcome these limitations. Land grading and building on the contour help to overcome the slope limitation.

The depth to saturated zone and the restricted permeability in the lower subsoil and substratum are limitations if this soil is used as a site for septic tank absorption fields. Minimal engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system upslope from the absorption field and adding permeable fill material help to overcome the seasonal wetness and the restricted permeability.

Erosion is a serious hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible. The capability subclass is 3e.

# 51D—Chadakoin channery silt loam, 15 to 25 percent slopes

This soil is moderately steep, very deep, and well drained. It is on uniformly sloping valley sides that receive runoff from higher adjacent soils. Individual areas are oblong or rectangular, and range from 15 to 75 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface laver:

0 to 4 inches, dark grayish brown channery silt loam with 15 percent channers

Subsurface layer:

4 to 9 inches, brown very friable channery silt loam with 15 percent channers

Subsoil:

9 to 27 inches, brown very friable channery silt loam, with 15 percent channers 27 to 33 inches, dark yellowish brown friable channery silt loam, with strong brown iron accumulations and 20 percent channers

Substratum:

33 to 54 inches, brown friable channery loam, with 25 percent channers 54 to 72 inches, grayish brown friable very channery loam, with 40 percent channers

Included in mapping are small areas of the moderately well drained Chautauqua soils; the moderately well drained Schuyler soils, which have more clay in the subsoil than the Chadakoin soil; Valois soils, which have more gravel in the substratum; and

Towerville soils which have bedrock within 40 inches. Included areas make up about 10 to 20 percent of this unit.

#### Soil properties—

Permeability: Moderate in the surface layer and upper part of the subsoil, and moderately slow or moderate in the lower part of the subsoil and in the substratum

Available water capacity: Low to high

Soil reaction: Very strongly acid to moderately acid in the surface layer and subsoil,

and strongly acid to slightly acid in the substratum

Water table: At a depth of more than 6.0 feet

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most of the acreage is woodland or is idle land that is reverting to brush and shrub. Some areas are used for hay or pasture. A small acreage is used for row crops.

This soil is poorly suited to cultivated crops because of the severe hazard of erosion and the slope. Operating farm equipment is difficult and hazardous because of the slope. Erosion is a serious hazard in cultivated areas. Cultivated crops should be grown only occasionally, and the maximum number of conservation practices should be used. Minimizing tillage, growing cover crops, incorporating crop residue into the soil, tilling across the slope, stripcropping, and including sod crops in the cropping system help to maintain good tilth, increase the content of organic matter, and control erosion. Sufficient applications of lime and fertilizer are needed to maintain crop growth. In some years droughtiness restricts crop growth.

This soil is moderately well suited to hay and pasture. It is especially suitable for grazing early in the growing season. Overgrazing can restrict plant growth and increase the hazard of erosion. Deep-rooted legumes grow well, but applications of lime and fertilizer are required to maintain the quality of stands and to ensure good plant growth. If plowing is necessary to establish a plant cover, plowing across the slope and leaving strips of sod help to control runoff. Using proper stocking rates, rotating livestock grazing, and controlling weeds and brush by mowing annually are the main management concerns.

The potential productivity of this soil for sugar maple is moderately high. The hazard of off-road or off-trail erosion is moderate and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building skid trails and roads across the slope minimizes gullying along the trails and roads.

Slope is the main limitation if this soil is used as a site for dwellings with basements. Extensive land modification and grading may be needed to overcome the slope.

Slope is the main limitation if this soil is used as a site for local roads and streets. Extensive land modification and grading may be needed to overcome the slope. Frost action is an additional limitation on sites for local roads and streets. Installing roadside drainage systems helps to overcome this limitation.

The slope and restricted permeability in the lower subsoil and substratum are limitations if this soil is used as a site for septic tank absorption fields. Extensive land modification is needed to overcome the slope. Installing a subsurface drainage system upslope from the absorption fields and adding permeable fill material help to overcome the restricted permeability.

Erosion is a serious hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 4e.

# 51E—Chadakoin channery silt loam, 25 to 35 percent slopes

This soil is steep, very deep, and well drained. It is on the side slopes of hills and on valley walls. It is in areas that receive runoff from the higher adjacent soils. Individual areas are oblong or occur as narrow strips on the side slopes. They range from 10 to several hundred acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 4 inches, dark grayish brown channery silt loam with 15 percent channers

Subsurface layer:

4 to 9 inches, brown very friable channery silt loam with 15 percent channers

Subsoil.

9 to 27 inches, brown very friable channery silt loam, with 15 percent channers 27 to 33 inches, dark yellowish brown friable channery silt loam, with strong brown iron accumulations and 20 percent channers

#### Substratum:

33 to 54 inches, brown friable channery loam, with 25 percent channers 54 to 72 inches, grayish brown friable very channery loam, with 40 percent channers

Included in mapping are small areas of the moderately well drained Schuyler soils which have more clay in the subsoil than the Chadakoin soil; Towerville soils which have bedrock within a depth of 40 inches; and Valois soils which have more gravel in the substratum. Also included are narrow bands of Udifluvents on the flood plains along the streams that dissect the unit. Included areas make up about 10 to 20 percent of this unit.

#### Soil properties—

Permeability: Moderate in the surface layer and upper part of the subsoil, and moderately slow or moderate in the lower part of the subsoil and in the substratum Available water capacity: Low to high

Soil reaction: Very strongly acid to moderately acid in the surface layer and subsoil, and strongly acid to slightly acid in the substratum

Water table: At a depth of more than 6.0 feet

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are wooded and provide habitat for wildlife. Some of the acreage is idle land or is used as pasture.

This soil is not suited to cultivated crops or hay because of the slope and the very severe hazard of erosion. Operating farm equipment is very difficult because of the slope. A plant cover that controls runoff and erosion is essential.

The suitability of this soil for pasture is limited. A good plant cover is needed. Prevention of overgrazing helps to protect the soil from erosion and gullying. Reseeding pastures is difficult because of the slope. Sufficient applications of lime and fertilizer are needed to improve native pastures.

The potential productivity of this soil for sugar maple is moderately high. The hazard of off-road or off-trail erosion is moderate and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building skid trails and roads across the slope minimizes gullying along the trails and roads.

The slope is the main limitation if this soil is used as a site for dwellings with basements. Land shaping and grading help to overcome this limitation. Designing the dwellings so that they conform to the natural slope of the land reduces the amount of grading required.

The slope and frost action are the main limitations if this soil is used as a site for local roads and streets. Land grading and building on the contour help to overcome the slope limitation. Installing roadside drainage systems reduces the potential for frost action.

The slope and the restricted permeability in the substratum are the main limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste systems are installed. Extensive land modification is needed to overcome the slope.

Erosion is a serious hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 6e.

# 51F—Chadakoin channery silt loam, 35 to 50 percent slopes

This soil is very steep, very deep, and well drained. It is on hillsides and valley sides that receive runoff from the higher adjacent soils. Many areas on the valley sides are deeply dissected by v-shaped gullies. Individual areas are elongated or occur as narrow strips on the side slopes. They commonly are 20 to 75 acres in size but range from 10 to several hundred acres.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 4 inches, dark grayish brown channery silt loam with 15 percent channers

#### Subsurface layer:

4 to 9 inches, brown very friable channery silt loam with 15 percent channers

#### Subsoil:

9 to 27 inches, brown very friable channery silt loam, with 15 percent channers 27 to 33 inches, dark yellowish brown friable channery silt loam, with strong brown iron accumulations and 20 percent channers

#### Substratum:

33 to 54 inches, brown friable channery loam, with 25 percent channers 54 to 72 inches, grayish brown friable very channery loam, with 40 percent channers

Included in mapping are small areas of the moderately well drained Schuyler soils which have more clay in the subsoil than the Chadakoin soil; Towerville soils which have bedrock within a depth of 40 inches; and Valois soils which have more gravel in the substratum. Also included are narrow bands of Udifluvents on the flood plains along the streams that dissect the unit. Included areas make up about 10 to 20 percent of this unit.

#### Soil properties—

Permeability: Moderate in the surface layer and upper part of the subsoil, and moderately slow or moderate in the lower part of the subsoil and in the substratum Available water capacity: Low to high

Soil reaction: Very strongly acid to moderately acid in the surface layer and subsoil, and strongly acid to slightly acid in the substratum

Water table: At a depth of more than 6 feet

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are used as woodland. A small acreage is idle land.

This soil is not suited to cultivated crops, hay or pasture. The slope and the very severe hazard of erosion are the main management concerns. The soil is too steep for the safe operation of farm machinery. A plant cover that controls runoff and erosion is essential.

The potential productivity of this soil for sugar maple is moderately high. The hazard of off-road or off-trail erosion and the hazard of erosion on roads and trails are severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building skid trails and roads across the slope minimizes gullying along the trails and roads.

The slope severely limits construction. It is the main limitation if this soil is used as a site for local roads and streets, dwellings with basements, and septic tank absorption fields. Erosion is a very severe hazard on construction sites. In most areas the native plant cover should not be removed.

The capability subclass is 7e.

## 52B—Valois gravelly silt loam, 3 to 8 percent slopes

This soil is gently sloping, very deep, and well drained. It is on reglaciated moraines on the lower sides of the major valleys. Individual areas are oblong or irregularly shaped. They commonly range from 10 to 75 acres in size, but some areas are as large as 200 acres or more.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 6 inches, dark grayish brown gravelly silt loam with 20 percent gravels

Subsoil:

6 to 17 inches, strong brown very friable gravelly silt loam, with 20 percent gravel 17 to 27 inches, yellowish brown very friable gravelly silt loam, with 15 percent gravel 27 to 48 inches, yellowish brown loose gravelly loam, with 20 percent gravel

Substratum:

48 to 72 inches, brown friable very gravelly sandy loam, with 35 percent gravel

Included in mapping are small areas of the moderately well drained Castile soils in slight depressions and along drainageways. Also included are the moderately well drained Chautauqua and Mardin soils in areas where the Valois soil adjoins glacial till; Chenango soils in areas where the Valois soil adjoins gravelly outwash; and nearly level Valois soils, and soils that have a channery surface layer. Included areas make up about 10 to 20 percent of this unit.

#### Soil properties—

Permeability: Moderate in the surface layer and upper part of the subsoil, moderate or moderately rapid in the lower part of the subsoil and in the substratum

Available water capacity: Low to high

Soil reaction: Extremely acid to moderately acid in the surface layer and subsoil, and very strongly acid to neutral in the substratum

Water table: At a depth of more than 6 feet

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas have been cleared and are used for crops, alfalfa, hay or pasture. The crops are grown in support of dairy farming. Woodlots are in some areas, and some of the acreage is idle land that is reverting to brush. This soil meets the requirements for prime farmland.

This soil is well suited to all of the crops commonly grown in the county. The crops that are planted early in spring and deep-rooted legumes grow especially well. Lime is needed for most crops, especially legumes. Crops respond well to sufficient applications of fertilizer. Gravel and occasional channery fragments in the surface layer may interfere with the cultivation of some crops and can increase the wear on machinery. Erosion is a hazard in intensively cultivated areas. Farming on the contour and stripcropping help to control erosion and conserve water during the growing season. Incorporating crop residue into the soil, minimizing tillage, growing cover crops, and including sod crops in the cropping system help to maintain tilth, increase the content of organic matter, and control erosion. In some years, droughtiness restricts crop growth.

This soil is well suited to hay and pasture. It is especially suitable for grazing early in the growing season. Overgrazing can restrict plant growth and increase the hazard of erosion. Deep-rooted legumes grow well, but applications of lime and fertilizer are required to maintain the quality of stands and to ensure good plant growth. Using proper stocking rates, rotating livestock grazing, and controlling weeds and brush are the main management concerns.

The potential productivity of this soil for sugar maple is moderately high. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is moderate. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival.

This soil has no major limitations as a site for dwellings with basements.

Frost action is the main limitation if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material reduces the potential for frost action.

The restricted permeability in the subsoil is a limitation if this soil is used as a site for septic tank absorption fields. Minimal engineering and design modifications are needed if onsite waste disposal systems are installed.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

This soil is a potential source of sand and gravel.

The capability subclass is 2e.

# 52C—Valois gravelly silt loam, 8 to 15 percent slopes

This soil is strongly sloping, very deep, and well drained. It is on reglaciated moraines on the lower sides of valleys. Individual areas are oblong, and range from 10 to 75 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 6 inches, dark grayish brown gravelly silt loam with 20 percent gravel

#### Subsoil:

6 to 17 inches, strong brown very friable gravelly silt loam, with 20 percent gravel 17 to 27 inches, yellowish brown very friable gravelly silt loam, with 15 percent gravel 27 to 48 inches, yellowish brown friable gravelly loam, with 20 percent gravel

#### Substratum

48 to 72 inches, brown loose very gravelly sandy loam, with 35 percent gravel

Included in mapping are small areas of the moderately well drained Castile soils in slight depressions and along drainageways. Also included are the moderately well drained Chautauqua and Mardin soils in areas where the Valois soil adjoins glacial till; Chenango soils in areas where the Valois soil adjoins gravelly outwash; and soils that have a channery surface layer. Included areas make up about 10 to 20 percent of this unit.

### Soil properties—

Permeability: Moderate in the surface layer and upper part of the subsoil, moderate or moderately rapid in the lower part of the subsoil and in the substratum

Available water capacity: Low to high

Soil reaction: Extremely acid to moderately acid in the surface layer and subsoil, and very strongly acid to neutral in the substratum

Water table: At a depth of more than 6 feet

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas have been cleared and are used for crops, alfalfa, hay or pasture. The crops are grown in support of dairy farming. Woodlots are in some areas, and some of the acreage is idle land that is reverting to brush.

This soil is moderately well suited to all of the crops commonly grown in the county. The crops that are planted early in spring and deep-rooted legumes grow especially well. Lime is needed for most crops, especially legumes. Crops respond well to sufficient applications of fertilizer. Gravel and occasional channery fragments in the surface layer interfere with the cultivation of some crops and can increase the wear on machinery. Erosion is a hazard in intensively cultivated areas. Contour farming and stripcropping, in combination with diversion or grassed waterways, help to control erosion. Incorporating crop residue into the soil, minimizing tillage, growing cover crops, and including sod crops in the cropping system help to maintain tilth, increase the content of organic matter, minimize erosion, and conserve moisture.

This soil is well suited to hay and pasture. It is especially suitable for grazing early in the growing season. Overgrazing can restrict plant growth and increase the hazard of erosion. Deep-rooted legumes grow well, but applications of lime and fertilizer are required to maintain the quality of stands and to ensure good plant growth. Using proper stocking rates, rotating livestock grazing, and controlling weeds and brush are the main management concerns.

The potential productivity of this soil for sugar maple is moderately high. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building skid trails and roads across the slope minimizes gullying along the trails and roads.

The slope is the main limitation if this soil is used as a site for dwellings with basements. Land grading and shaping help overcome this limitation.

Frost action and the slope are the main limitations if this soil is used as a site for local roads and streets. Land grading and building on the contour help to overcome the slope limitation. Installing roadside drainage systems and backfilling with coarse textured subgrade or base material reduce the potential for frost action.

The restricted permeability in the subsoil is a limitation if this soil is used as a site for septic tank absorption fields. Minimal engineering and design modifications are needed if onsite waste disposal systems are installed.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

This soil is a potential source of sand and gravel.

The capability subclass is 3e.

# 52D—Valois gravelly silt loam, 15 to 25 percent slopes

This soil is moderately steep, very deep, and well drained. It is on hilly reglaciated moraines on the lower sides of valleys. Individual areas are oblong, and range from 10 to 50 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 6 inches, dark grayish brown gravelly silt loam with 20 percent gravel

Subsoil

6 to 17 inches, strong brown very friable gravelly silt loam, with 20 percent gravel 17 to 27 inches, yellowish brown very friable gravelly silt loam, with 15 percent gravel 27 to 48 inches, yellowish brown friable gravelly loam, with 20 percent gravel

Substratum:

48 to 72 inches, brown loose very gravelly sandy loam, with 35 percent gravel

Included in mapping are small areas of the moderately well drained Castile soils in slight depressions and along drainageways. Also included are the well drained Chadakoin and moderately well drained Mardin soils in areas where the Valois soils adjoin glacial till; Chenango soils in areas where the Valois soils adjoin gravelly outwash; and soils that have a channery surface layer. Included areas make up about 15 to 25 percent of this unit.

### Soil properties—

Permeability: Moderate in the surface layer and upper part of the subsoil, moderate or moderately rapid in the lower part of the subsoil and in the substratum

Available water capacity: Low to high

Soil reaction: Extremely acid to moderately acid in the surface layer and subsoil, and very strongly acid to neutral in the substratum

Water table: At a depth of more than 6 feet

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most of the acreage is woodland or is idle land that is reverting to brush. Some areas are used for hay or pasture. A few areas are used for row crops.

This soil is poorly suited to cultivated crops because of the slope and the severe hazard of erosion. The slope limits the use of farm equipment. Gravel on the surface may interfere with tillage and cause excessive wear on machinery. If cultivated, a maximum number of conservation practices should be used. Growing cover crops, minimizing tillage, and establishing diversions that break up long slopes and divert excess runoff help to control erosion. Where the slope permits, farming on the contour and stripcropping are suitable. Because tilling the soil is difficult and erosion is a hazard, long-term sod crops are more practical than other crops.

This soil is moderately well suited to hay and pasture than to cultivated crops. It is especially suitable for grazing early in the growing season. Overgrazing can restrict plant growth and increase the hazard of erosion. Deep-rooted legumes grow well, but applications of lime and fertilizer are required to maintain the quality of stands and to ensure good plant growth. Using proper stocking rates, rotating livestock grazing, and controlling weeds and brush are the main management concerns.

The potential productivity of this soil for sugar maple is moderately high. The hazard of off-road or off-trail erosion is moderate and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building skid trails and roads across the slope minimizes gullying along the trails and roads.

The slope is the main limitation if this soil is used as a site for dwellings with basements. Land grading and building on the contour help to overcome the slope limitation.

Slope and frost action are the main limitations if this soil is used as a site for local roads and streets. Land grading and building on the contour help to overcome the slope limitation. Installing roadside drainage systems and backfilling with coarse textured subgrade or base material reduce the potential for frost action.

The slope and the restricted permeability in the subsoil are limitations if this soil is used as a site for septic tank absorption fields. Land grading and shaping help overcome the slope limitation.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

This soil is a potential source of sand and gravel.

The capability subclass is 4e.

# 52E—Valois gravelly silt loam, 25 to 35 percent slopes

This soil is steep, very deep, and well drained. It is on reglaciated moraines on the sides of valleys. Many areas are deeply dissected by V-shaped gullies. Individual areas are elongated or occur as narrow strips on the valley sides. The areas range from 10 to 50 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 6 inches, dark grayish brown gravelly silt loam with 20 percent gravel

### Subsoil:

6 to 17 inches, strong brown very friable gravelly silt loam, with 20 percent gravel 17 to 27 inches, yellowish brown very friable gravelly silt loam, with 15 percent gravel 27 to 48 inches, yellowish brown friable gravelly loam, with 20 percent gravel

#### Substratum:

48 to 72 inches, brown loose very gravelly sandy loam, with 35 percent gravel

Included in mapping are small areas of the moderately well drained Castile and Chautauqua soils along drainageways and in seepage spots. Also included are the Chadakoin soils in areas where the Valois soil adjoins glacial till; Chenango soils in areas where the Valois soil adjoins gravelly outwash; and narrow bands of Udifluvents on the floodplains along the streams that dissect the unit. Included areas make up about 15 to 25 percent of this unit.

### Soil properties—

Permeability: Moderate in the surface layer and upper part of the subsoil, moderate or moderately rapid in the lower part of the subsoil and in the substratum

Available water capacity: Low to high

Soil reaction: Extremely acid to moderately acid in the surface layer and subsoil, and very strongly acid to neutral in the substratum

Water table: At a depth of more than 6 feet

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are wooded and provide wildlife habitat. Some of the less sloping areas are idle or are used as pasture.

This soil is not suited to cultivated crops or hay because of the slope and the very severe hazard of erosion. Operating farm equipment is very difficult because of the slope. A plant cover that controls runoff and erosion is essential.

The less sloping areas of this soil can be used as pasture on a limited basis. A good plant cover is needed. Prevention of overgrazing helps to protect the soil from erosion and gullying. Reseeding pastures is difficult because of the slope. Sufficient applications of lime and fertilizer are needed to improve native pastures.

The potential productivity of this soil for sugar maple is moderately high. The hazard of off-road or off-trail erosion is moderate and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building skid trails and roads across the slope minimizes gullying along the trails and roads.

The slope is the main limitation if this soil is used as a site for dwellings with basements. Extensive land grading and shaping may be necessary. Designing the dwellings so that they conform to the natural slope of the land reduces the amount of grading required.

Slope and frost action are the main limitations if this soil is used as a site for local roads and streets. Land grading and building on the contour help to overcome the slope limitation. Installing roadside drainage systems and backfilling with coarse textured subgrade or base material reduce the potential for frost action.

The slope and the restricted permeability in the subsoil are limitations if this soil is used as a site for septic tank absorption fields. Land grading and shaping help overcome the slope limitation.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 6e.

# 52F—Valois gravelly silt loam, 35 to 50 percent slopes

This soil is very steep, very deep, and well drained. It is on reglaciated moraines on the sides of valleys. Many areas are deeply dissected by V-shaped gullies. Individual areas are elongated or occur as narrow strips on the valley sides. The areas range from 10 to 50 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 6 inches, dark grayish brown gravelly silt loam with 20 percent gravel

### Subsoil:

6 to 17 inches, strong brown very friable gravelly silt loam, with 20 percent gravel 17 to 27 inches, yellowish brown very friable gravelly silt loam, with 15 percent gravel 27 to 48 inches, yellowish brown friable gravelly loam, with 20 percent gravel

#### Substratum:

48 to 72 inches, brown loose very gravelly sandy loam, with 35 percent gravel

Included in mapping are small areas of the moderately well drained Castile and Chautauqua soils along drainageways and in seepage spots. Also included are the Chadakoin soils in areas where the Valois soil adjoins glacial till; Chenango soils in areas where the Valois soil adjoins gravelly outwash; and narrow bands of Udifluvents and Fluvaquents on the flood plains along the streams that dissect the unit. Included areas make up about 15 to 25 percent of this unit.

### Soil properties—

Permeability: Moderate in the surface layer and upper part of the subsoil, moderate or moderately rapid in the lower part of the subsoil and in the substratum Available water capacity: Low to high

Soil reaction: Extremely acid to moderately acid in the surface layer and subsoil, and very strongly acid to neutral in the substratum

Water table: At a depth of more than 6 feet

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are wooded and provide wildlife habitat.

This soil is not suited to cultivated crops, hay or pasture. It is limited by the slope and the very severe hazard of erosion. It is too steep for the safe operation of farm equipment. A plant cover that controls runoff and erosion is essential.

The potential productivity of this soil for sugar maple is moderately high. The hazard of off-road or off-trail erosion and the hazard of erosion on roads and trails are severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building skid trails and roads across the slope minimizes gullying along the trails and roads.

Construction is extremely difficult or impractical on this soil. The slope is the main limitation if this soil is used as a site for local roads and streets, dwellings with basements, and septic tank absorption fields. Erosion is a very serious hazard on construction sites. In most areas the native plant cover should not be removed.

The capability subclass is 7e.

# 53C—Valois-Volusia-Mardin complex, 3 to 15 percent slopes

This unit consists of rolling, very deep, well drained Valois soils, somewhat poorly drained Volusia soils, and moderately well drained Mardin soils that formed in glacial till. It is on a series of ridges and knolls that slope in many directions. It is on dissected terraces, on long eskers, and in areas of kettle-kame deposits. This unit consists of about 30 percent Valois soils, 25 percent Volusia soils, 20 percent Mardin soils, and 25 percent other soils (fig. 8). The Valois-Volusia-Mardin complex soils are in such an intricate pattern that they were not able to be mapped separately. Individual areas are oblong or irregularly shaped, and range from 10 to 150 acres in size.

The typical sequence, depth, and composition of the layers of Valois soils are as follows—

Surface layer:

0 to 6 inches, dark grayish brown gravelly silt loam with 20 percent gravel

### Subsoil:

6 to 17 inches, strong brown very friable gravelly silt loam, with 20 percent gravel 17 to 27 inches, yellowish brown very friable gravelly silt loam, with 15 percent gravel 27 to 48 inches, yellowish brown friable gravelly loam, with 20 percent gravel

#### Substratum:

48 to 72 inches, brown loose very gravelly sandy loam, with 35 percent gravel

The typical sequence, depth, and composition of the layers of Volusia soils are as follows—

Surface layer:

0 to 7 inches, very dark grayish brown channery silt loam with 15 percent channers

#### Subsurface layer:

7 to 16 inches, light brownish gray friable channery loam, with yellowish brown iron accumulations, and 25 percent channers

### Subsoil:

16 to 45 inches, brown very firm channery silt loam, with yellowish brown iron accumulations and grayish brown iron depletions, and 30 percent channers



Figure 8.—A typical area of Valois-Volusia-Mardin complex, 3 to 15 percent slopes. The better drained Valois soils occupy the higher and more sloping areas, while the Mardin soils and Volusia soils occupy the intermediate areas and wetter depressional areas, respectively.

#### Substratum:

45 to 68 inches, brown firm very channery silt loam, with yellowish brown iron accumulations and light brownish gray iron depletions, and 35 percent channers 68 to 72 inches, grayish brown firm very gravelly loam, with 45 percent gravel

The typical sequence, depth, and composition of the layers of Mardin soils are as follows—

# Surface layer:

0 to 6 inches, dark grayish brown channery silt loam with 15 percent channers

#### Subsoil:

6 to 14 inches, yellowish brown friable silt loam, with 10 percent channers 14 to 17 inches, light yellowish brown friable silt loam, with strong brown iron accumulations and gray iron depletions, and 10 percent channers

17 to 29 inches, olive brown firm channery silt loam, with strong brown iron accumulations and gray iron depletions, and 15 percent channers

29 to 41 inches, olive brown very firm channery silt loam, with strong brown iron accumulations and gray iron depletions, and 15 percent channers

#### Substratum:

41 to 72 inches, grayish brown firm channery silt loam, with dark yellowish brown iron accumulations, and 20 percent channers

Included in mapping are small areas of the moderately well drained Castile soils in slight depressions and along drainageways, and the poorly drained Chippewa and Ashville soils in small potholes. Also included are the moderately well drained Chautaugua and Canaseraga soils in areas where this unit adjoins glacial till, and

soils that have a silt loam surface layer. Included areas make up about 15 to 35 percent of this unit.

# Soil properties of the Valois soils—

Permeability: Moderate in the surface layer and upper part of the subsoil, moderate or moderately rapid in the lower part of the subsoil and in the substratum

Available water capacity: Low to high

Soil reaction: Extremely acid to moderately acid in the surface layer and subsoil, and

very strongly acid to neutral in the substratum

Water table: At a depth of more than 6 feet

Flooding hazard: None

Depth to bedrock: More than 6 feet

# Soil properties of the Volusia soils—

Permeability: Moderate in the surface and subsurface layer and slow or very slow in the fragipan layer and substratum

Available water capacity: Very low or low

Soil reaction: Very strongly acid to moderately acid in the surface layer, very strongly acid to slightly acid in the subsurface and upper subsoil, strongly acid to slightly acid in the fragipan, and from strongly acid to slightly alkaline in the substratum

Water table: Perched at a depth of .5 to 1.5 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

# Soil properties of the Mardin soils—

Permeability: Moderate in the surface layer and subsoil above the fragipan, slow or very slow in the fragipan and substratum

Available water capacity: Very Low or low

Soil reaction: Very strongly acid to moderately acid above the fragipan, very strongly acid to slightly acid in the fragipan, and strongly acid to neutral in the substratum

Water table: Perched at a depth of 1.1 to 2.0 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas have been cleared and are used for crops, alfalfa, hay or pasture. The crops are grown in support of dairy farming. Woodlots are in some areas, and some of the acreage is idle land that is reverting to brush.

This soil is moderately well suited to all of the crops commonly grown in the county, but the complex topography makes intensive cropping impractical. The unit is better suited to long-term hay crops. Erosion is a hazard in intensively cultivated areas. Because of the rolling topography, farming on the contour, establishing diversions, and stripcropping are difficult. The crops that are planted early in spring and deeprooted legumes grow especially well on the Valois portion of this unit. Lime is needed for most crops, especially legumes. Crops respond well to sufficient applications of fertilizer. Gravel and occasional channery fragments in the surface layer interfere with the cultivation of some crops and can increase the wear on machinery. Incorporating crop residue into the soil, minimizing tillage, growing cover crops, and including sod crops in the cropping system help to maintain tilth, increase the content of organic matter, minimize erosion, and conserve moisture. Installing drainage tile in the wet included areas helps to make management of the field more efficient, but may be difficult due to the complex topography of the unit.

The soil is well suited to hay and pasture. Overgrazing can restrict plant growth and increase the hazard of erosion. Deep-rooted legumes grow well, but applications of lime and fertilizer are required to maintain the quality of stands and to ensure good

plant growth. Using proper stocking rates, rotating livestock grazing, and controlling weeds and brush are the main management concerns.

The potential productivity of this soil for sugar maple is moderate or moderately high. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is severe. The potential for seedling mortality ranges from low in the Valois and Mardin parts of this unit to high in the Volusia part of this unit. The seasonal wetness increases the seedling mortality rate in the Volusia soils. Planting seedlings in spring, when the soil is moist, helps to ensure their survival in the Valois and Mardin soils. Building skid trails and roads across the slope minimizes gullying along the trails and roads.

The slope is the main limitation if this soil is used as a site for dwellings with basements. Land grading and shaping help to overcome this limitation. In the wetter parts of this unit, depth to saturated zone is the main limitation on sites for dwellings with basements. Installing drains around footings and sealing foundations and basement walls help to prevent excessive wetness in basements. Also, installing interceptor drains and diversion ditches in upslope areas diverts surface and subsurface water from the dwellings.

Frost action and the slope are the main limitations if this soil is used as a site for local roads and streets. In the wetter parts of this unit, depth to saturated zone and frost action are the main limitations. Land grading and building on the contour help to overcome the slope limitation. Installing roadside drainage systems and backfilling with coarse textured subgrade or base material reduce the potential for frost action and wetness.

The depth to saturated zone, depth to dense material, and restricted permeability are limitations if this soil is used as a site for septic tank absorption fields on the Mardin and Volusia parts of this unit. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system in the area around the absorption field and adding permeable fill material help to overcome the seasonal wetness and the restricted permeability of these soils. Land grading and shaping, also help to overcome the slope.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 3e.

# 55A—Darien silt loam, 0 to 3 percent slopes

This soil is nearly level, very deep, and somewhat poorly drained. It is on flat benches and broad till plains. Individual areas are oblong in shape, and range from 10 to 30 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 7 inches, dark grayish brown silt loam with 5 percent gravel

Subsurface layer:

7 to 14 inches, pale olive friable silt loam, with olive brown iron accumulations and light brownish gray iron depletions, and 5 percent gravel

Subsoil:

14 to 23 inches, dark grayish brown firm silt loam, with light olive brown iron accumulations, and 10 percent gravel

23 to 38 inches, olive brown firm silty clay loam, with light brownish gray iron depletions, and 10 percent gravel

Substratum:

38 to 72 inches, grayish brown firm gravelly silt loam, with brown iron accumulations, and 15 percent gravel

Included in mapping are small areas of the poorly drained Ashville soils in slight depressions and along drainageways; Erie soils which have a fragipan; Busti soils which have less clay in the subsoil; and Fremont soils which are more acid than the Darien soil. Also included are small areas of soils that have a gravelly surface layer. Included areas make up about 10 to 20 percent of this unit.

### Soil properties—

Permeability: Moderate in the surface layer and subsurface layer, moderately slow in the subsoil, and slow in the substratum

Available water capacity: Moderate or high

Soil reaction: Strongly acid to neutral in the surface layer, subsurface and subsoil, and from slightly alkaline to moderately alkaline in the substratum

Water table: Perched at a depth of 0.5 to 1.5 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are used for hay, pasture or cultivated crops grown in support of dairy farming. Some of the acreage is woodland or idle land. Where drained, this soil meets the requirements of prime farmland.

This soil is moderately well suited to cultivated crops. Unless a drainage system is installed, planting is delayed in spring and the soil can be used only for short-season annual crops, hay, or pasture. Harvesting crops during prolonged wet periods in fall is more difficult on this soil than on the more sloping adjacent Darien soils. If a drainage system is installed, the soil is suited to the crops commonly grown in the county. Wetness can be reduced by closely spaced tile and open-ditch drainage systems. Maintaining good tilth is a management concern in intensively cultivated areas. Incorporating crop residue into the soil, growing cover crops, and tilling only when the soil is at the proper moisture content help to maintain tilth and the content of organic matter.

This soil is well suited to water-tolerant hay and to late-spring pasture. Overgrazing and grazing when the soil is wet are the main concerns in managing pasture. Grazing when the soil is wet causes compaction and damages the pasture. Using proper stocking rates, rotating livestock grazing, deferring grazing when the soil is wet, controlling brush and weeds, and selecting water-tolerant species for seeding are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion and the hazard of erosion on roads and trails are slight. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand the seasonal wetness grow best.

The depth to saturated zone is the main limitation if this soil is used as a site for dwellings with basements. Where outlets are available, installing drains around footings reduces the wetness. Also, sealing foundations and basement walls helps to prevent excessive wetness in basements.

The depth to saturated zone and frost action are the main limitations if this soil is used as a site for local roads and streets. Installing roadside drainage systems and building on raised coarse textured fill material help to overcome these limitations.

The depth to saturated zone and the restricted permeability in the subsoil and substratum are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system in the area around the absorption

field reduces the wetness, and adding permeable fill material helps to overcome the seasonal wetness and the restricted permeability.

The capability subclass is 3w.

# 55B—Darien silt loam, 3 to 8 percent slopes

This soil is gently sloping, very deep, and somewhat poorly drained. It is on hilltops, broad till plains, and valley toeslopes that receive runoff from the higher adjacent soils. Individual areas are oblong, and range from 10 to 50 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 7 inches, dark grayish brown silt loam with 5 percent gravel

Subsurface layer:

7 to 14 inches, pale olive friable silt loam, with olive brown iron accumulations and light brownish gray iron depletions, and 5 percent gravel

Subsoil:

14 to 23 inches, dark grayish brown firm silt loam, with light olive brown iron accumulations, and 10 percent gravel

23 to 38 inches, olive brown firm silty clay loam, with light brownish gray iron depletions, and 10 percent gravel

Substratum:

38 to 72 inches, grayish brown firm gravelly silt loam, with brown iron accumulations, and 15 percent gravel

Included in mapping are small areas of the poorly drained Ashville soils in slight depressions and along drainageways; Erie soils which have a fragipan; Busti soils which have less clay in the subsoil; and Fremont soils which are more acid than the Darien soil. Also included are small areas of soils that have a gravelly surface layer. Included areas make up about 10 to 20 percent of this unit.

#### Soil properties—

Permeability: Moderate in the surface layer and subsurface layer, moderately slow in the subsoil, and slow in the substratum

Available water capacity: Moderate or high

Soil reaction: Strongly acid to neutral in the surface layer, subsurface and subsoil, and from slightly alkaline to moderately alkaline in the substratum

Water table: Perched at a depth of 0.5 to 1.5 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are used for hay, pasture or cultivated crops grown in support of dairy farming. Some of the acreage is woodland or idle land. Where drained, this soil meets the requirements of prime farmland.

This soil is moderately well suited to cultivated crops. Unless a drainage system is installed, planting is delayed in spring and the soil can be used only for short-season annual crops, hay, or pasture. Harvesting crops during prolonged wet periods in fall is difficult. If drained and protected from erosion, the soil is suited to the crops commonly grown in the county. Interceptor drains can divert runoff from the higher adjacent soils, and tile and open-ditch drainage systems can remove excess water. Tile drains generally should be closely spaced because of the restricted permeability in the subsoil. Erosion can be controlled by stripcropping, farming on the contour, growing cover crops, and minimizing tillage. Incorporating crop residue into the soil,

growing cover crops, and tilling only when the soil is at the proper moisture content, help to maintain tilth and the content of organic matter.

This soil is well suited to water-tolerant hay and to late-spring pasture. Overgrazing and grazing when the soil is wet are the main concerns in managing pasture. Grazing when the soil is wet causes surface compaction, restricts plant growth, and can deplete the stand of pasture grasses, and thus increase the hazard of erosion. Using proper stocking rates, deferring grazing when the soil is wet, controlling brush and weeds, and selecting water-tolerant species for seeding are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is moderate. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand the seasonal wetness grow best.

The depth to saturated zone is the main limitation if this soil is used as a site for dwellings with basements. Where outlets are available, installing drains around footings reduces the wetness. Also, sealing foundations and basement walls helps to prevent excessive wetness in basements.

The depth to saturated zone and frost action are the main limitations if this soil is used as a site for local roads and streets. Installing roadside drainage systems and building on raised coarse textured fill material help to overcome these limitations.

The depth to saturated zone and the restricted permeability in the subsoil and substratum are limitations on sites for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system in the area around the absorption field reduces the wetness, and adding permeable fill material helps to overcome the seasonal wetness and the restricted permeability.

Erosion is a serious hazard if the plant cover is removed during construction. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 3w.

# 55C—Darien silt loam, 8 to 15 percent slopes

This soil is strongly sloping, very deep, and somewhat poorly drained. It is on hillsides and valley sides that receive runoff from the higher adjacent soils. Individual areas are oblong, and range from 10 to 40 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface laver:

0 to 7 inches, dark grayish brown silt loam with 5 percent gravel

Subsurface layer:

7 to 14 inches, pale olive friable silt loam, with olive brown iron accumulations and light brownish gray iron depletions, and 5 percent gravel

Subsoil:

14 to 23 inches, dark grayish brown firm silt loam, with light olive brown iron accumulations, and 10 percent gravel

23 to 38 inches, olive brown firm silty clay loam, with light brownish gray iron depletions, and 10 percent gravel

Substratum:

38 to 72 inches, grayish brown firm gravelly silt loam, with brown iron accumulations, and 15 percent gravel

Included in mapping are small areas of the poorly drained Ashville soils in slight depressions and along drainageways; Erie soils which have a fragipan; Busti soils which have less clay in the subsoil; and Fremont soils which are more acid than the Darien soil. Also included are small areas of soils that have a gravelly surface layer. Included areas make up about 10 to 20 percent of this unit.

# Soil properties—

Permeability: Moderate in the surface layer and subsurface layer, moderately slow in the subsoil, and slow in the substratum

Available water capacity: Moderate or high

Soil reaction: Strongly acid to neutral in the surface layer, subsurface and subsoil, and from slightly alkaline to moderately alkaline in the substratum

Water table: Perched at a depth of 0.5 to 1.5 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are used for hay, pasture or cultivated crops grown in support of dairy farming. Some of the acreage is woodland or idle land.

This soil is moderately well suited to cultivated crops. Unless a drainage system is installed, planting is delayed in spring and the soil can be used only for short-season annual crops, hay, or pasture. Harvesting crops during prolonged wet periods in fall is difficult. Erosion is a hazard where cultivated crops are grown. If drained and protected from erosion, the soil is suited to most of the crops commonly grown in the county. Interceptor drains can divert runoff from the higher adjacent soils, and tile and open-ditch drainage systems can remove excess water. Tile drains generally should be closely spaced because of the restricted permeability in the subsoil. Erosion can be controlled by stripcropping, farming on the contour, growing cover crops, and minimizing tillage. Incorporating crop residue into the soil, growing cover crops, and tilling only when the soil is at the proper moisture content, help to maintain tilth and the content of organic matter.

This soil is well suited to water-tolerant hay and to late-spring pasture. Overgrazing and grazing when the soil is wet are the main concerns in managing pasture. Overgrazing damages pasture and results in erosion. Grazing when the soil is wet causes surface compaction, restricts plant growth, depletes the stand of pasture grasses, and thus increases the hazard of erosion. Using proper stocking rates, deferring grazing when the soil is wet, controlling brush and weeds, and selecting water-tolerant species for seeding are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand the seasonal wetness grow best. Building skid trails and roads across the slope minimizes gullying along the trails and roads.

The depth to saturated zone and slope are the main limitations if this soil is used as a site for dwellings with basements. Where outlets are available, installing drains around footings reduces the wetness. Also, sealing foundations and basement walls helps to prevent excessive wetness in basements. Land grading and building on the contour help to overcome the slope limitation.

The depth to saturated zone, frost action, and slope are the main limitations if this soil is used as a site for local roads and streets. Installing roadside drainage systems and building on raised coarse textured fill material help to overcome these limitations. Land grading and building on the contour help to overcome the slope limitation.

The depth to saturated zone and the restricted permeability in the subsoil and substratum are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal

systems are installed. Installing a drainage system in the area around the absorption field reduces the wetness, and adding permeable fill material helps to overcome the seasonal wetness and the restricted permeability.

Erosion is a serious hazard if the plant cover is removed during construction. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 3e.

# 56B—Chautauqua silt loam, 3 to 8 percent slopes

This soil is gently sloping, very deep, and moderately well drained. It is on convex hilltops and small knolls that receive little or no runoff from the higher adjacent soils. Individual areas are oblong or irregularly shaped. They commonly range from 5 to 50 acres, but some are as large as several hundred acres.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 9 inches, dark grayish brown silt loam with 10 percent gravel

#### Subsoil:

9 to 21 inches, yellowish brown friable silt loam, with 10 percent gravel

21 to 29 inches, brown firm gravelly silt loam, with yellowish brown iron accumulations and grayish brown iron depletions and 15 percent gravel

29 to 36 inches, brown firm gravelly loam, with yellowish brown iron accumulations and dark grayish brown iron depletions and 20 percent gravel

#### Substratum:

36 to 52 inches, brown firm gravelly loam, with yellowish brown iron accumulations and grayish brown iron depletions and 20 percent gravel

52 to 72 inches, grayish brown firm gravelly loam with 20 percent gravel

Included in mapping are small areas of the somewhat poorly drained Busti soils along drainageways and in wet spots; the well drained Chadakoin and Valois soils in the slightly higher positions on the landscape; the moderately well drained Langford soils which have a fragipan in the subsoil; and Chautauqua soils that have a gravelly surface layer. Included areas make up about 15 to 25 percent of this unit.

### Soil properties—

Permeability: Moderate in the surface and subsoil, moderately slow in the substratum Available water capacity: Moderate or high

Soil reaction: Moderately acid or slightly acid in the surface layer, strongly acid to slightly acid in the subsoil and the substratum

Water table: At a depth of 1.5 to 2.0 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas have been cleared and are used for row crops, alfalfa, hay or pasture. The row crops are grown in support of dairy farming. Some of the acreage is woodland or is idle land that is reverting to brush. This soil meets the requirements for prime farmland.

This soil is well suited to most of the crops commonly grown in the county. The seasonal wetness delays planting for a short period in spring, but the soil can be easily worked after it has dried. Surface or tile drains commonly are needed so that fields can be farmed more uniformly. Lime is needed for most crops, especially legumes. Crops respond well to sufficient applications of fertilizer. Measures that maintain tilth, increase the content of organic matter, and control erosion include

tilling only when the soil is at the proper moisture content, incorporating crop residue into the soil, and growing cover crops. Minimizing tillage, farming on the contour, and stripcropping help to control erosion on long slopes. If wetter spots are adequately drained and field drainageways are provided, the soil is well suited to many crops, particularly corn, small grain, and hay.

This soil is well suited to pasture. Overgrazing is a major concern in managing pasture because it can damage the pasture plants. Grazing when the soil is wet in spring can result in compaction and can damage the pasture. Topdressing with lime and fertilizer, using proper stocking rates, rotating livestock grazing, controlling weeds and brush by mowing annually, and deferring grazing when the soil is wet help to maintain high-quality pasture.

The potential productivity of this soil for sugar maple is moderately high. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is moderate. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival.

The depth to saturated zone is the main limitation if this soil is used as a site for dwellings with basements. Installing drains around footings, and sealing foundations and basement walls help to prevent excessive wetness in basements.

Frost action and depth to saturated zone are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems help to overcome these limitations.

The depth to saturated zone and the restricted permeability in the substratum are limitations on sites for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system in the area around the absorption fields and adding permeable fill material help to overcome the seasonal wetness and the restricted permeability. Sloughing and the caving-in of the unstable soil material are also limitations affecting excavations.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 2w.

# 56C—Chautauqua silt loam, 8 to 15 percent slopes

This soil is strongly sloping, very deep, and moderately well drained. It is on hillsides and side slopes that receive runoff from the higher adjacent soils. Individual areas are rectangular, and range from 10 to 75 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 9 inches, dark grayish brown silt loam with 10 percent gravel

Subsoil:

9 to 21 inches, yellowish brown friable silt loam, with 10 percent gravel

21 to 29 inches, brown firm gravelly silt loam, with yellowish brown iron accumulations and grayish brown iron depletions and 15 percent gravel

29 to 36 inches, brown firm gravelly loam, with yellowish brown iron accumulations and dark grayish brown iron depletions and 20 percent gravel

Substratum:

36 to 52 inches, brown firm gravelly loam, with yellowish brown iron accumulations and grayish brown iron depletions and 20 percent gravel

52 to 72 inches, grayish brown firm gravelly loam with 20 percent gravel

Included in mapping are small areas of the somewhat poorly drained Busti soils along drainageways and in seepage spots; the well drained Chadakoin soils in the

slightly higher positions on the landscape; the moderately well drained Langford soils which have a fragipan in the subsoil; and the moderately well drained Schuyler soils which have more clay in the subsoil than the Chautauqua soil. Also included are Chautauqua soils that have a gravelly surface layer. Included areas make up about 15 to 25 percent of this unit.

# Soil properties—

Permeability: Moderate in the surface and subsoil, moderately slow in the substratum

Available water capacity: Moderate to high

Soil reaction: Moderately acid or slightly acid in the surface layer, strongly acid to slightly acid in the subsoil and the substratum

Water table: At a depth of 1.5 to 2.0 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most of the acreage is used for row crops, alfalfa, hay or pasture. The row crops are grown in support of dairy farming. Some of the acreage is woodland or is idle land that is reverting to woodland.

This soil is moderately well suited to cultivated crops. If wetter spots are adequately drained and field drainageways are provided, the soil can be used for many crops, particularly corn, small grain, and hay. The seasonal wetness delays planting for a short period in spring, but the soil can be easily worked after it has dried. Lime is needed for most crops, especially legumes. Crops respond well to sufficient applications of fertilizer. Erosion is a serious hazard on long slopes in intensively cultivated areas. Contour farming and stripcropping in combination with diversion or grassed waterways help to control erosion (fig. 9). Incorporating crop residue into the soil, rotating crops, minimizing tillage, and growing cover crops help to maintain tilth. Growing cover crops also helps control erosion, and increase the content of organic matter.

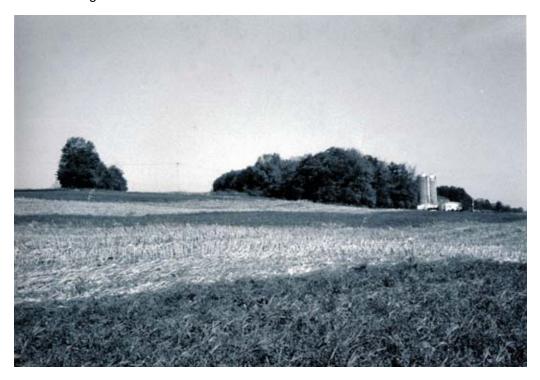


Figure 9.—Stripcropping helps to control erosion in this area of Chautauqua silt loam, 8 to 15 percent slopes.

This soil is well suited to pasture. Overgrazing is a major concern in managing pasture because it can damage the pasture plants and increase the hazard of erosion. Grazing when the soil is wet in spring can result in compaction and can damage the pasture. Topdressing with lime and fertilizer, using proper stocking rates, rotating livestock grazing, controlling weeds and brush by mowing annually, and deferring grazing when the soil is wet help to maintain high-quality pasture.

The potential productivity of this soil for sugar maple is moderately high. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building logging roads and skid trails on the contour helps control erosion and minimizes gullying along the trails.

The depth to saturated zone and the slope are the main limitations on sites for dwellings with basements. Installing drains around footings, and sealing foundations and basement walls help to prevent excessive wetness in basements. Also, installing interceptor drains and diversion ditches in upslope areas diverts surface and subsurface water from the dwellings. Land grading and shaping help overcome the slope limitation.

Frost action, depth to saturated zone, and the slope are the main limitations if this soil is used as a site for local roads and streets. Land grading and building on the contour help to overcome the slope limitation. Installing roadside drainage systems reduces the wetness and the potential for frost action.

The depth to saturated zone and the restricted permeability in the substratum are limitations on sites for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system upslope from the absorption field and adding permeable fill material help to overcome the seasonal wetness and the restricted permeability. Sloughing and the caving-in of the unstable soil material are also limitations affecting excavations.

Erosion is a serious hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible. The capability subclass is 3e.

# 56D—Chautauqua silt loam, 15 to 25 percent slopes

This soil is moderately steep, very deep, and moderately well drained. It is on smooth hillsides and valley sides that receive runoff from the higher adjacent soils. Individual areas are oblong or rectangular, and range from 15 to 75 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 9 inches, dark grayish brown silt loam with 10 percent gravel

Subsoil:

9 to 21 inches, yellowish brown friable silt loam, with 10 percent gravel

21 to 29 inches, brown firm gravelly silt loam, with yellowish brown iron accumulations and grayish brown iron depletions and 15 percent gravel

29 to 36 inches, brown firm gravelly loam, with yellowish brown iron accumulations and dark grayish brown iron depletions and 20 percent gravel

#### Substratum:

36 to 52 inches, brown firm gravelly loam, with yellowish brown iron accumulations and grayish brown iron depletions and 20 percent gravel

52 to 72 inches, grayish brown firm gravelly loam with 20 percent gravel

Included in mapping are small areas of the somewhat poorly drained Busti soils along drainageways and in seepage spots; the well drained Chadakoin soils in the slightly higher positions on the landscape; the moderately well drained Langford soils which have a fragipan in the subsoil; and the moderately well drained Schuyler soils which have more clay in the subsoil than the Chautauqua soil. Also included are Chautauqua soils that have a gravelly surface layer. Included areas make up about 15 to 25 percent of this unit.

# Soil properties—

Permeability: Moderate in the surface and subsoil, moderately slow in the substratum Available water capacity: Moderate or high

Soil reaction: Moderately acid or slightly acid in the surface layer, strongly acid to slightly acid in the subsoil and the substratum

Water table: At a depth of 1.5 to 2.0 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most of the acreage is woodland, or is idle land that is reverting to brush. Some areas are used for hay or pasture. A small acreage is used for row crops.

This soil is poorly suited to cultivated crops because of the severe hazard of erosion and the slope, which limits the use of farm machinery. Erosion is a hazard in cultivated areas. Cultivated crops should be grown only occasionally, and the maximum number of conservation practices should be used. Minimizing tillage, growing cover crops, tilling on the contour, stripcropping, and frequently including grasses and legumes in the cropping system help to maintain good tilth, increase the content of organic matter, and control erosion. Sufficient applications of lime and fertilizer are needed to maintain crop growth.

This soil is well suited to hay and pasture. It is especially suitable for grazing early in the growing season. Overgrazing can restrict plant growth and increase the hazard of erosion. Deep-rooted legumes can be grown, but applications of lime and fertilizer are required to maintain the quality of stands, and to ensure good plant growth. If plowing is necessary to establish a plant cover, plowing across the slope and leaving strips of sod help to control runoff. Using proper stocking rates, rotating livestock grazing, and controlling weeds and brush by mowing annually are the main management concerns.

The potential productivity of this soil for sugar maple is moderately high. The hazard of off-road or off-trail erosion is moderate and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building logging roads and skid trails on the contour helps control erosion and minimizes gullying along the trails.

The depth to saturated zone and the slope are the main limitations if this soil is used as a site for dwellings with basements. Installing drains around footings and sealing foundations and basement walls help to prevent excessive wetness in basements. Also, installing interceptor drains and diversion ditches in upslope areas diverts surface and subsurface water from the dwellings. Land grading and shaping help to overcome the slope limitation.

Slope, frost action and depth to saturated zone are the main limitations on sites for local roads and streets. Land grading and building on the contour help to overcome the slope limitation. Installing roadside drainage systems reduces the wetness and the potential for frost action.

The depth to saturated zone, the restricted permeability in the substratum, and the slope are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system upslope from the absorption field

and adding permeable fill material help to overcome the seasonal wetness and the restricted permeability. Land grading and shaping help overcome this limitation.

Sloughing and the caving-in of the unstable soil material are also limitations affecting excavations.

Erosion is a serious hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible. The capability subclass is 4e.

# 57A—Busti silt loam, 0 to 3 percent slopes

This soil is nearly level, very deep, and somewhat poorly drained. It occurs in uplands on benches and toeslopes and along the edges of drainageways in concave landscapes that receive runoff from the higher adjacent soils. Individual areas are circular or irregularly shaped and range from 5 to 75 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 8 inches, very dark grayish brown silt loam with 10 percent gravel

Subsurface layer:

8 to 13 inches, grayish brown friable loam, with yellowish brown iron accumulations and light brownish gray iron depletions and 10 percent gravel

#### Subsoil:

13 to 26 inches, brown friable gravelly loam, with strong brown iron accumulations and light brownish gray iron depletions and 20 percent gravel

26 to 35 inches, brown friable gravelly loam, with yellowish brown and reddish brown iron accumulations and grayish brown iron depletions and 25 percent gravel

35 to 39 inches, brown firm gravelly loam, with yellowish brown iron accumulations and grayish brown iron depletions and 25 percent gravel

#### Substratum:

39 to 72 inches, brown friable gravelly loam, with yellowish brown iron accumulations and grayish brown iron depletions and 25 percent gravel

Included in mapping are small areas of the poorly drained Ashville soils in slight depressions and along drainageways; Erie soils which have more clay and a fragipan; and Fremont soils which have more clay in the subsoil than the Busti soil. Very deep, moderately well drained Chautauqua soils are included in more sloping and higher positions on the landscape. Also included are small areas of Orpark soils, which are 20 to 40 inches deep over bedrock, and small areas of Busti soils that have a channery or gravelly surface layer. Included areas make up about 15 to 25 percent of this unit.

#### Soil properties—

Permeability: Moderately slow or moderate in the surface and subsoil layers, and moderately slow or slow in the substratum

Available water capacity: Moderate or high

Soil reaction: Moderately acid through neutral throughout the profile Water table: At a depth of 0.5 to 1.5 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are used for cultivated crops, hay, or pasture grown in support of dairy farming. Some of the acreage is woodland, or is idle land that is reverting to woodland. Where drained, this soil meets the requirements for prime farmland.

This soil is moderately well suited to cultivated crops. Unless a drainage system is

installed, planting is delayed in spring and the soil can be used only for short-season annual crops, hay, or pasture. Harvesting crops during prolonged wet periods in fall is more difficult on this soil than on the more sloping adjacent Chautauqua soils. If a drainage system is installed, the soil is suited to the crops commonly grown in the county. Wetness can be reduced in some areas by diverting runoff from the adjacent slopes and by installing tile and open-ditch drainage systems. Maintaining good tilth is a management concern in intensively cultivated areas. Minimizing tillage, incorporating crop residue into the soil, growing cover crops, and tilling only when the soil is at the proper moisture content help to maintain tilth and the content of organic matter.

This soil is well suited to water-tolerant hay and to late-spring pasture. Overgrazing and grazing when the soil is wet are the major concerns in managing pasture. Grazing when the soil is wet causes surface compaction, restricts plant growth, and can deplete the stand of pasture grasses and thus result in serious erosion. Using proper stocking rates, rotating livestock grazing, deferring grazing when the soil is wet, controlling weeds and brush, and selecting water-tolerant species for seeding are the main management practices.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion and the hazard of erosion on roads and trails are slight. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand the seasonal wetness grow best.

The depth to saturated zone is the main limitation if this soil is used as a site for dwellings with basements. Where outlets are available, installing drains around footings reduces the wetness. Also, sealing foundations and basement walls helps to prevent excessive wetness in basements.

The depth to saturated zone and frost action are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems help to overcome these limitations.

The depth to saturated zone and the restricted permeability in the subsoil and substratum are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system in the area around the absorption field reduces the wetness, and adding permeable fill material helps to overcome the seasonal wetness and the restricted permeability. Sloughing and the caving-in of the unstable soil material are also limitations affecting excavations.

Erosion is a hazard if the plant cover is removed during construction. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 3w.

# 57B—Busti silt loam, 3 to 8 percent slopes

This soil is gently sloping, very deep, and somewhat poorly drained. It is in convex areas on uplands, on side slopes, and in concave areas on foot slopes that receive runoff from the higher adjacent soils. Individual areas are irregularly shaped or rectangular. Most areas range from 10 to 75 acres in size, but some are as large as 100 acres or more.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 8 inches, very dark grayish brown silt loam with 10 percent gravel

Subsurface layer:

8 to 13 inches, grayish brown friable loam, with yellowish brown iron accumulations and light brownish gray iron depletions and 10 percent gravel

#### Subsoil:

13 to 26 inches, brown friable gravelly loam, with strong brown iron accumulations and light brownish gray iron depletions and 20 percent gravel

26 to 35 inches, brown friable gravelly loam, with yellowish brown and reddish brown iron accumulations and grayish brown iron depletions and 25 percent gravel

35 to 39 inches, brown firm gravelly loam, with yellowish brown iron accumulations and grayish brown iron depletions and 25 percent gravel

#### Substratum:

39 to 72 inches, brown friable gravelly loam, with yellowish brown iron accumulations and grayish brown iron depletions and 25 percent gravel

Included in mapping are small areas of the poorly drained Ashville soils in slight depressions and along drainageways; Erie soils which have more clay and a fragipan; and Fremont soils which have more clay in the subsoil than the Busti soil. Very deep, moderately well drained Chautauqua soils are included in more sloping and higher positions on the landscape. Also included are small areas of Orpark soils, which are 20 to 40 inches deep over bedrock, and small areas of Busti soils that have a channery or gravelly surface layer. Included areas make up about 15 to 25 percent of this unit.

### Soil properties—

Permeability: Moderately slow or moderate in the surface and subsoil layers, and moderately slow or slow in the substratum

Available water capacity: Moderate or high

Soil reaction: Moderately acid through neutral throughout the profile Water table: At a depth of 0.5 to 1.5 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are used for cultivated crops, hay, or pasture. Some of the acreage is woodland or is idle land that is reverting to woodland. Where drained, this soil meets the requirements for prime farmland.

This soil is moderately well suited to cultivated crops. Undrained areas are better suited to short-season crops and to hay and pasture. Wetness delays tillage in spring and may make harvesting difficult in fall. If drained and protected from erosion, the soil is suited to most of the crops commonly grown in the county. Interceptor drains can divert runoff from the higher adjacent soils, and tile drains and open-ditch drainage systems can remove excess water. Tile drains generally should be closely spaced because of the restricted permeability in the subsoil. Erosion can be controlled by stripcropping, farming on the contour, growing cover crops, and minimizing tillage. Incorporating crop residue into the soil, and tilling only when the soil is at the proper moisture content improve tilth and help to maintain the content of organic matter.

This soil is well suited to water-tolerant hay and to late-spring pasture. Overgrazing and grazing when the soil is wet are the main concerns in managing pasture. Grazing when the soil is wet causes surface compaction, restricts plant growth, and can deplete the stand of pasture grasses, and thus result in serious erosion. Using proper stocking rates, rotating livestock grazing, deferring grazing when the soil is wet, controlling weeds and brush, and selecting water-tolerant species for seeding are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is moderate. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand the seasonal wetness grow best.

The depth to saturated zone is the main limitation if this soil is used as a site for dwellings with basements. Where outlets are available, installing drains around

footings reduces the wetness. Also, sealing foundations and basement walls helps to prevent excessive wetness in basements.

The depth to saturated zone and frost action are the main limitations if this soil is used as a site for local roads and streets. Installing roadside drainage systems and building on raised coarse textured fill material help to overcome these limitations.

The depth to saturated zone and the restricted permeability in the subsoil and substratum are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system in the area around the absorption field reduces the wetness, and adding permeable fill material helps to overcome the seasonal wetness and the restricted permeability. Sloughing and the caving-in of the unstable soil material are also limitations affecting excavations.

Erosion is a serious hazard if the plant cover is removed during construction. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 3w.

# 57C—Busti silt loam, 8 to 15 percent slopes

This soil is strongly sloping, very deep, and somewhat poorly drained. It is on side slopes and foot slopes that receive runoff from the higher adjacent soils. Individual areas are oblong, and range from 10 to 50 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 8 inches, very dark grayish brown silt loam with 10 percent gravel

### Subsurface layer:

8 to 13 inches, grayish brown friable loam, with yellowish brown iron accumulations and light brownish gray iron depletions and 10 percent gravel

#### Subsoil:

- 13 to 26 inches, brown friable gravelly loam, with strong brown iron accumulations and light brownish gray iron depletions and 20 percent gravel
- 26 to 35 inches, brown friable gravelly loam, with yellowish brown and reddish brown iron accumulations and grayish brown iron depletions and 25 percent gravel
- 35 to 39 inches, brown firm gravelly loam, with yellowish brown iron accumulations and grayish brown iron depletions and 25 percent gravel

#### Substratum:

39 to 72 inches, brown friable gravelly loam, with yellowish brown iron accumulations and grayish brown iron depletions and 25 percent gravel

Included in mapping are small areas of the poorly drained Ashville soils in slight depressions and along drainageways; Erie soils which have more clay and a fragipan; and Fremont soils which have more clay in the subsoil than the Busti soil. Very deep, moderately well drained Chautauqua soils are included in more sloping and higher positions on the landscape. Also included are small areas of Orpark soils, which are 20 to 40 inches deep over bedrock, and small areas of Busti soils that have a channery or gravelly surface layer. Included areas make up about 15 to 25 percent of this unit.

# Soil properties—

Permeability: Moderately slow or moderate in the surface and subsoil layers, and moderately slow or slow in the substratum

Available water capacity: Moderate or high

Soil reaction: Moderately acid through neutral throughout the profile Water table: At a depth of 0.5 to 1.5 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are used for hay, pasture, or cultivated crops grown in support of dairy farming. Some of the acreage is woodland, or is idle land that is reverting to woodland.

This soil is moderately well suited to farming. If drained and protected from erosion, this soil can be used for most of the crops commonly grown in the county. Undrained areas are better suited to short-season crops and to hay and pasture. Wetness delays planting in spring and may make harvesting difficult in fall. Interceptor drains can divert runoff and seepage from the higher adjacent soils. Tile can drain the wetter included soils and thus permit a more uniform use of fields. Erosion can be controlled by stripcropping, farming on the contour, growing cover crops, and minimizing tillage. Incorporating crop residue into the soil, and tilling only when the soil is at the proper moisture content improve tilth and help to maintain the content of organic matter.

This soil is well suited to water-tolerant hay and to late-spring pasture. Grazing when the soil is wet damages the pasture. If the plant cover is depleted as a result of overgrazing, the hazard of erosion is increased. Using proper stocking rates, rotating livestock grazing, deferring grazing when the soil is wet, controlling weeds and brush, and selecting water-tolerant species for seeding are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand the seasonal wetness grow best. Building skid trails and roads across the slope minimizes gullying along the trails and roads.

The depth to saturated zone and slope are the main limitations if this soil is used as a site for dwellings with basements. Where outlets are available, installing drains around footings reduces the wetness. Also, sealing foundations and basement walls helps to prevent excessive wetness in basements. Land grading and building on the contour help to overcome the slope limitation.

The depth to saturated zone, frost action and slope are the main limitations if this soil is used as a site for local roads and streets. Installing roadside drainage systems and building on raised coarse textured fill material help to overcome these limitations. Land grading and building on the contour help to overcome the slope limitation.

The depth to saturated zone and the restricted permeability in the subsoil and substratum are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system in the area around the absorption field reduces the seasonal wetness, and adding permeable fill material helps to overcome the wetness and the restricted permeability. Sloughing and the caving-in of the unstable soil material are also limitations affecting excavations.

Erosion is a serious hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 3e.

# 58B—Rushford channery silt loam, 3 to 8 percent slopes

This soil is gently sloping, very deep, and moderately well drained. It is on valley toeslopes and elevated lake plains that receive runoff from the higher adjacent soils. Individual areas are oblong, and range from 10 to 50 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 4 inches, brown channery silt loam, with 15 percent channers

Subsoil:

4 to 9 inches, yellowish brown very friable channery silt loam, with 15 percent channers

9 to 21 inches, yellowish brown very friable channery silt loam, with yellowish brown iron accumulations, and 20 percent channers

21 to 28 inches, pale brown very firm channery loam, with yellowish brown iron accumulations, and 25 percent channers

28 to 36 inches, yellowish brown firm silt loam

Substratum:

36 to 72 inches, olive brown firm silt loam, with varves of dark yellowish brown silty clay loam

Included in mapping are small areas of the somewhat poorly drained Wiscoy soils along drainageways and in seepage spots; Mardin and Langford soils where the lacustrine silts and clays are absent below 36 inches; Schuyler soils where the fragipan is lacking; and areas where the loamy mantle is thin or absent. Also included are small areas of Rushford soils that do not have channery fragments in the surface layer. Included areas make up about 10 to 25 percent of the unit.

### Soil properties—

Permeability: Moderate in the surface layer and subsoil above the fragipan, very slow or slow in the fragipan, and moderately slow in the substratum

Available water capacity: Very low to moderate

Soil reaction: Very strongly acid to slightly acid in the surface layer, very strongly acid to moderately acid in the upper subsoil, and very strongly acid to slightly acid in the lower subsoil and substratum

Water table: Perched at a depth of 1.1 to 2.0 feet

from November through May Flooding hazard: None

Depth to bedrock: More than 6 feet

Most of the acreage has been cleared and is used for row crops grown in support of dairy farming. The rest is woodland, pasture, or idle land.

This soil is well suited to most of the crops commonly grown in the county. The surface layer has many flat stone fragments that interfere with tillage and harvesting operations but do not prevent cultivation. Draining the wetter included soils by random tile drains allows for earlier planting and more uniform management of the fields. Sufficient applications of lime are needed if legumes are to be established. Erosion is a hazard on long slopes and intensively cultivated areas. Farming on the contour, stripcropping, growing cover crops, and establishing diversions that break up long slopes help to control runoff and erosion. Minimizing tillage, growing cover crops, incorporating crop residue into the soil, and mulching increase the rate of water infiltration during the growing season and help to maintain tilth.

This soil is well suited to pasture. Overgrazing and grazing when the soil is wet are the main concerns in managing pasture. The soil becomes compacted if the pasture is grazed during wet periods. Overgrazing and surface compaction restrict plant growth, damage pasture plants, and increase the rate of runoff. Applying a sufficient amount of lime and fertilizer, using proper stocking rates, rotating livestock grazing, and controlling weeds and brush are the main management concerns.

The potential productivity of this soil for sugar maple is moderately high. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is moderate. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival.

The depth to saturated zone is the main limitation if this soil is used as a site for dwellings with basements. Installing drains around footings and sealing foundations and basement walls will help to prevent excessive wetness in basements.

Frost action and depth to saturated zone are the main limitations on sites for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems help to overcome these limitations.

The depth to saturated zone, depth to dense material, and restricted permeability are limitations on sites for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste systems are installed. Installing a drainage system in the area around the absorption field and adding permeable fill material help to overcome seasonal wetness and the restricted permeability.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 2w.

# 58C—Rushford channery silt loam, 8 to 15 percent slopes

This soil is strongly sloping, very deep, and moderately well drained. It is on lower hillsides and side slopes near elevated lake plains that receive runoff from the higher adjacent soils. Individual areas are rectangular, and range from 5 to 30 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 4 inches, brown channery silt loam with 15 percent channers

Subsoil:

4 to 9 inches, yellowish brown very friable channery silt loam, with 15 percent channers 9 to 21 inches, yellowish brown very friable channery silt loam, with yellowish brown iron accumulations, and 20 percent channers

21 to 28 inches, brown very firm channery loam, with yellowish brown iron accumulations, and 25 percent channers

28 to 36 inches, yellowish brown firm silt loam

Substratum:

36 to 72 inches, olive brown firm silt loam, with varves of dark yellowish brown silty clay loam

Included in mapping are small areas of the somewhat poorly drained Wiscoy soils along drainageways and in seepage spots; Mardin and Langford soils where the lacustrine silts and clays are absent or below 36 inches; Schuyler soils where the fragipan is lacking; and areas where the loamy mantle is thin or absent. Also included are small areas of Rushford soils that do not have channery fragments in the surface layer. Included areas make up about 10 to 25 percent of this unit.

#### Soil properties—

Permeability: Moderate in the surface layer and subsoil above the fragipan, very slow or slow in the fragipan and moderately slow in the substratum

Available water capacity: Very low to moderate

Soil reaction: Very strongly acid to slightly acid in the surface layer, very strongly acid to moderately acid in the upper subsoil, and very strongly acid to slightly acid in the lower subsoil and substratum

Water table: Perched at a depth of 1.1 to 2.0 feet

from November through May Flooding hazard: None

Depth to bedrock: More than 6 feet

Most of the acreage has been cleared and is used for row crops grown in support of dairy farming. The rest is woodland, pasture, or idle land.

This soil is moderately well suited to crops if erosion and runoff are controlled. The surface layer has many flat stone fragments which would interfere with tillage and harvesting operations but do not prevent cultivation. Draining the wetter included soils by random tile drains allows for earlier planting and more uniform management of the fields. Sufficient applications of lime are needed if legumes are to be established. Erosion is a hazard on long slopes and intensively cultivated areas. Farming on the contour, stripcropping, growing cover crops, and establishing diversions that break up long slopes help to control runoff and erosion. Minimizing tillage, growing cover crops, incorporating crop residue into the soil, and mulching increase the rate of water infiltration during the growing season and help to maintain tilth. Areas where conservation practices cannot be applied are better suited to deep-rooted legumes than to cultivated crops.

This soil is well suited to pasture. Overgrazing is the main concern in managing pasture because it can damage pasture plants. Grazing when the soil is wet early in spring can result in surface compaction, damage to the pasture and severe erosion. Rotating livestock grazing, using proper stocking rates, controlling weeds and brush, and deferring grazing when the soil is wet are the main management concerns.

The potential productivity of this soil for sugar maple is moderately high. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building logging roads and skid trails on the contour helps control erosion and minimizes gullying along the trails.

The depth to saturated zone and slope are the main limitations on sites for dwellings with basements. Installing drains around footings and sealing foundations and basement walls will help to prevent excessive wetness in basements. Land grading and building on the contour help to overcome the slope limitation.

Frost action, depth to saturated zone and slope are the main limitations if this soil is used as a site for local roads and streets. Land grading and building on the contour help to overcome the slope. Adding coarse textured subgrade or base material and installing roadside drainage systems help to overcome the limitations due to frost action and wetness.

The depth to saturated zone, depth to dense material, and restricted permeability are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste systems are installed. Installing a drainage system in the area around the absorption field and adding permeable fill material help to overcome seasonal wetness and the restricted permeability.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 3e

# 59B—Yorkshire channery silt loam, 3 to 8 percent slopes

This soil is gently sloping, very deep, and moderately well drained. It occurs on convex hilltops and on side slopes that receive runoff from the higher adjacent soils. It

occurs at elevations above 1800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are oblong and range from 10 to 50 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 8 inches, dark grayish brown channery silt loam with 20 percent channers

#### Subsoil:

- 8 to 13 inches, yellowish brown very friable channery silt loam, with 20 percent channers
- 13 to 17 inches, yellowish brown friable channery silt loam, with brown iron accumulations and grayish brown iron depletions, and 20 percent channers
- 17 to 19 inches, brown friable channery loam, with grayish brown iron depletions, and 15 percent channers
- 19 to 31 inches, olive brown firm channery silt loam, with strong brown iron accumulations and grayish brown iron depletions, and 25 percent channers
- 31 to 56 inches, olive brown firm channery silty clay loam, with yellowish brown iron accumulations and dark grayish brown iron depletions, and 20 percent channers

#### Substratum:

56 to 72 inches, olive brown firm channery silt loam, with yellowish brown iron accumulations and 30 percent channers

Included in mapping are small areas of the somewhat poorly drained Napoli soils along drainageways and in seepage spots; Salamanca soils which do not have a fragipan in the subsoil; Ischua soils which have bedrock within 40 inches; and Willdin soils which lack the clay accumulation in the subsoil. Also included are small areas of Yorkshire soils that do not have channery fragments in the surface layer. Included areas make up about 10 to 20 percent of the unit.

# Soil properties—

Permeability: Moderate in the surface layer and subsoil above the fragipan, and slow in the fragipan and substratum

Available water capacity: Very low to moderate

Soil reaction: Very strongly acid to slightly acid in the surface layer, from very strongly acid to moderately acid in the upper subsoil, from very strongly acid to slightly acid in the fragipan, and from strongly acid to neutral in the substratum

Water table: Perched at a depth of 1.2 to 2.0 feet from November through May Flooding hazard: None

Depth to bedrock: More than 6 feet

Most of the acreage has been cleared and is used for row crops grown in support of dairy farming. The rest is woodland, pasture, or idle land.

This soil is well suited to most of the crops commonly grown in the county. The growing season is shorter for this soil than for nearby valley soils at lower elevations. The use of short-season or early maturing crop varieties is recommended. The surface layer has many flat stone fragments that interfere with tillage and harvesting operations but do not prevent cultivation. Draining the wetter included soils by random tile drains allows for earlier planting and more uniform management of fields. Sufficient applications of lime are needed if legumes are to be established. Erosion is a hazard on long slopes and intensively cultivated areas. Farming on the contour, stripcropping, growing cover crops, and establishing diversions that break up long slopes help to control runoff and erosion. Minimizing tillage, growing cover crops, incorporating crop residue into the soil, and mulching increase the rate of water infiltration during the growing season and help to maintain tilth.

This soil is well suited to pasture. Overgrazing and grazing when the soil is wet are the main concerns in managing pasture. The soil becomes compacted if the pasture is grazed during wet periods. Overgrazing and surface compaction restrict plant growth, damage pasture plants, and increase the rate of runoff. Applying a sufficient amount of lime and fertilizer, using proper stocking rates, rotating livestock grazing, and controlling weeds and brush are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is moderate. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival.

The depth to saturated zone is the main limitation if this soil is used as a site for dwellings with basements. Installing drains around footings, and sealing foundations and basement walls will help to prevent excessive wetness in basements.

Frost action and depth to saturated zone are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems help to overcome these limitations.

The depth to saturated zone, depth to dense material, and restricted permeability are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste systems are installed. Installing a drainage system in the area around the absorption field and adding permeable fill material help to overcome seasonal wetness and the restricted permeability.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 2w.

# 59C—Yorkshire channery silt loam, 8 to 15 percent slopes

This soil is strongly sloping, very deep, and moderately well drained. It occurs on hillsides and side slopes that receive runoff from the higher adjacent soils. It occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are rectangular, and range from 5 to 30 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 8 inches, dark grayish brown channery silt loam with 20 percent channers

#### Subsoil:

- 8 to 13 inches, yellowish brown very friable channery silt loam, with 20 percent channers
- 13 to 17 inches, yellowish brown friable channery silt loam, with brown iron accumulations and grayish brown iron depletions, and 20 percent channers
- 17 to 19 inches, brown friable channery loam, with grayish brown iron depletions, and 15 percent channers
- 19 to 31 inches, olive brown firm channery silt loam, with strong brown iron accumulations and grayish brown iron depletions, and 25 percent channers
- 31 to 56 inches, olive brown firm channery silty clay loam, with yellowish brown iron accumulations and dark grayish brown iron depletions, and 20 percent channers

#### Substratum:

56 to 72 inches, olive brown firm channery silt loam, with yellowish brown iron accumulations and 30 percent channers

Included in mapping are small areas of the somewhat poorly drained Napoli soils along drainageways and in seepage spots; Salamanca soils which do not have a

fragipan in the subsoil; Ischua soils which have bedrock within 40 inches; and Willdin soils which lack the clay accumulation in the subsoil. Also included are small areas of Yorkshire soils that do not have channery fragments in the surface layer. Included areas make up about 10 to 20 percent of the unit.

### Soil properties—

Permeability: Moderate in the surface layer and subsoil above the fragipan, and slow in the fragipan and substratum

Available water capacity: Very low to moderate

Soil reaction: Very strongly acid to slightly acid in the surface layer, from very strongly acid to moderately acid in the upper subsoil, from very strongly acid to slightly acid in the fragipan, and from strongly acid to neutral in the substratum

Water table: Perched at a depth of 1.2 to 2.0 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most of the acreage has been cleared and is used for row crops grown in support of dairy farming. The rest is woodland, pasture, or idle land.

This soil is moderately well suited to row crops if erosion and runoff are controlled. The growing season is shorter for this soil than for nearby valley soils at lower elevations. The use of short-season or early maturing crop varieties is recommended. The surface layer has many flat stone fragments which would interfere with tillage and harvesting operations but do not prevent cultivation. Draining the wetter included soils by random tile drains allows for earlier planting and more uniform management of fields. Sufficient applications of lime are needed if legumes are to be established. Erosion is a hazard on long slopes and intensively cultivated areas. Farming on the contour, stripcropping, growing cover crops, and establishing diversions that break up long slopes help to control runoff and erosion. Minimizing tillage, growing cover crops, incorporating crop residue into the soil, and mulching increase the rate of water infiltration during the growing season and help to maintain tilth. Areas where conservation practices cannot be applied are better suited to deep-rooted legumes than to cultivated crops.

This soil is well suited to pasture. Overgrazing is the main concern in managing pasture because it can damage pasture plants. Grazing when the soil is wet early in spring can result in surface compaction, damage to the pasture, and severe erosion. Rotating livestock grazing, using proper stocking rates, controlling weeds and brush, and deferring grazing when the soil is wet are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building logging roads and skid trails on the contour helps control erosion and minimizes gullying along the trails.

The depth to saturated zone and slope are the main limitations if this soil is used as a site for dwellings with basements. Installing drains around footings and sealing foundations and basement walls will help to prevent excessive wetness in basements. Land grading and building on the contour help to overcome the slope limitation.

Frost action, slope and depth to saturated zone are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems help to overcome these limitations. Land grading and building on the contour help to overcome the slope limitation.

The depth to saturated zone, depth to dense material, and restricted permeability are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste systems are installed. Installing a drainage system in the area around the absorption fields and

adding permeable fill material help to overcome seasonal wetness and the restricted permeability.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 3e

# 59D—Yorkshire channery silt loam, 15 to 25 percent slopes

This soil is moderately steep, very deep, and moderately well drained. It occurs on smooth hillsides and valley sides that receive runoff from the higher adjacent soils. It occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are oblong and narrow, and range from 10 to 40 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 8 inches, dark grayish brown channery silt loam with 20 percent channers

#### Subsoil:

8 to 13 inches, yellowish brown very friable channery silt loam, with 20 percent channers 13 to 17 inches, yellowish brown friable channery silt loam, with brown iron accumulations and grayish brown iron depletions, and 20 percent channers

17 to 19 inches, brown friable channery loam, with grayish brown iron depletions, and 15 percent channers

19 to 31 inches, olive brown firm channery silt loam, with strong brown iron accumulations and grayish brown iron depletions, and 25 percent channers

31 to 56 inches, olive brown firm channery silty clay loam, with yellowish brown iron accumulations and dark grayish brown iron depletions, and 20 percent channers

#### Substratum:

56 to 72 inches, olive brown firm channery silt loam, with yellowish brown iron accumulations and 30 percent channers

Included in mapping are small areas of the somewhat poorly drained Napoli soils along drainageways and in seepage spots; Salamanca soils which do not have a fragipan in the subsoil; Ischua soils which have bedrock within 40 inches; and Willdin soils which lack the clay accumulation in the subsoil. Also included are small areas of Yorkshire soils that do not have channery fragments in the surface layer. Included areas make up about 10 to 20 percent of the unit.

### Soil properties—

Permeability: Moderate in the surface layer and subsoil above the fragipan, and slow in the fragipan and substratum

Available water capacity: Very low to moderate

Soil reaction: Very strongly acid to slightly acid in the surface layer, from very strongly acid to moderately acid in the upper subsoil, from very strongly acid to slightly acid in the fragipan, and from strongly acid to neutral in the substratum

Water table: Perched at a depth of 1.2 to 2.0 feet from November through May Flooding hazard: None

Depth to bedrock: More than 6 feet

Most of the acreage is woodland, or is idle land that is reverting to brush and shrubs. Some areas are used for hay, pasture, or row crops.

This soil is poorly suited to cultivated crops because of the slope and the severe

hazard of erosion. The growing season is shorter for this soil than for nearby valley soils at lower elevations. The use of short-season or early maturing crop varieties is recommended. The slope limits the use of farm equipment. Tillage is slightly delayed in spring because of the wetness. Channery fragments on the surface interfere with tillage and cause excessive wear on machinery. Cultivated crops should be grown only occasionally, and the maximum number of conservation practices should be used. Growing cover crops, minimizing tillage, and establishing diversions that break up long slopes and divert excess runoff help to control erosion. Where the slope permits, farming on the contour and stripcropping are suitable. Because tilling the soil is difficult and erosion is a hazard, long-term sod crops are more practical than most other crops. Applying a sufficient amount of lime and fertilizer is needed to maintain good crop growth.

This soil is generally better suited to hay and pasture than to cultivated crops. Grazing when the soil is wet and overgrazing are main concerns in managing pasture. Grazing when the soil is wet causes surface compaction and damage to the pasture. Overgrazing increases the hazard of erosion. Plowing across the slope and leaving strips of sod help to control erosion when an area is reseeded. Rotating livestock grazing, using proper stocking rates, controlling weeds and brush, deferring grazing when the soil is wet, and applying the proper kinds and amounts of lime and fertilizer are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion is moderate and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building logging roads and skid trails on the contour helps control erosion and minimizes gullying along the trails.

The depth to saturated zone and slope are the main limitations if this soil is used as a site for dwellings with basements. Installing drains around footings, and sealing foundations and basement walls will help to prevent excessive wetness in basements. Land grading and building on the contour help to overcome the slope limitation.

Frost action, slope and depth to saturated zone are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems help to overcome these limitations. Land grading and building on the contour help to overcome the slope limitation.

The slope, depth to saturated zone, depth to dense material, and restricted permeability are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste systems are installed. Extensive land modification is needed to overcome the slope. Installing a subsurface drainage system upslope from the absorption field and adding permeable fill material help to overcome seasonal wetness and the restricted permeability.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 4e.

# 60A—Napoli silt loam, 0 to 3 percent slopes

This soil is nearly level, very deep, and somewhat poorly drained. It occurs on flat hilltops that receive little or no runoff, and on upland benches that receive runoff from the higher adjacent soils. It occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are circular or irregularly shaped, and range from 5 to 75 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 9 inches, very dark grayish brown silt loam with 10 percent channers

Subsoil:

- 9 to 15 inches, dark yellowish brown very friable silty clay loam, with strong brown iron accumulations and light brownish gray iron depletions, and 10 percent channers
- 15 to 23 inches, grayish brown friable silt loam, with strong brown iron accumulations and light brownish gray iron depletions, and 10 percent channers
- 23 to 33 inches, dark yellowish brown firm channery silt loam, with yellowish brown iron accumulations and light brownish gray iron depletions, and 25 percent channers
- 33 to 46 inches, brown firm channery silty clay loam, with yellowish brown iron accumulations and light brownish gray iron depletions, and 30 percent channers

Substratum:

46 to 72 inches, grayish brown firm channery silty clay loam, with light olive brown and brown iron accumulations, and 30 percent channers

Included in mapping are small areas of poorly drained soils in slight depressions and along drainageways, and Almond soils which do not have a fragipan, and have more clay in the subsoil than the Napoli soil. Also included are small areas of Gretor soils which are 20 to 40 inches deep over bedrock, and small areas of Napoli soils that have a channery surface layer. Included areas make up about 15 to 25 percent of this unit.

# Soil properties—

Permeability: Moderate or moderately slow in the surface and upper subsoil, and slow or moderately slow in the fragipan and substratum

Available water capacity: Very low to moderate

Soil reaction: Very strongly acid to slightly acid in the surface, very strongly acid to moderately acid in the upper subsoil, very strongly acid to slightly acid in the fragipan, and from strongly acid to neutral in the substratum

Water table: Perched at a depth of 0.5 to 1.5 feet from November through May Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are used for cultivated crops, hay, or pasture. Some of the acreage is woodland, or is idle land that is reverting to woodland.

This soil is moderately well suited to cultivated crops. The growing season is shorter for this soil than for nearby valley soils at lower elevations. The use of short-season or early maturing crop varieties is recommended. Unless a drainage system is installed, planting is delayed in spring, and the soil can be used only for short-season annual crops, hay, or pasture. Harvesting crops during prolonged wet periods in fall is more difficult on this soil than on the more sloping adjacent Napoli soils. If a drainage system is installed, the soil is suited to the crops commonly grown in the county. The wetness can be reduced by closely spaced tile and open-ditch drainage systems. Maintaining good tilth is a management concern in intensively cultivated areas. Minimizing tillage, incorporating crop residue into the soil, growing cover crops, and tilling only when the soil is at the proper moisture content, help to maintain tilth and the content of organic matter.

This soil is well suited to water-tolerant hay and to late-spring pasture. Overgrazing and grazing when the soil is wet are the major concerns in managing pasture. Grazing when the soil is wet causes surface compaction, restricts plant growth, and can deplete the stand of pasture grasses and thus result in serious erosion. Using proper stocking rates, rotating livestock grazing, deferring grazing when the soil is

wet, controlling weeds and brush, and selecting water-tolerant species for seeding are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion and the hazard of erosion on roads and trails are slight. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand the seasonal wetness grow best.

The depth to saturated zone is the main limitation if this soil is used as a site for dwellings with basements. Where outlets are available, installing drains around footings reduces the wetness. Also, sealing foundations and basement walls helps to prevent excessive wetness in basements.

The depth to saturated zone and frost action are the main limitations if this soil is used as a site for local roads and streets. Installing roadside drainage systems and building on raised coarse textured fill material help to overcome these limitations.

The depth to saturated zone, depth to dense material, and restricted permeability are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system in the area around the absorption fields reduces the seasonal wetness, and adding permeable fill material helps to overcome the wetness and the restricted permeability.

The capability subclass is 3w.

# 60B—Napoli silt loam, 3 to 8 percent slopes

This soil is gently sloping, very deep, and somewhat poorly drained. It occurs on hilltops, side slopes and concave toeslopes on uplands that receive runoff from the higher adjacent soils. It occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are oblong or irregularly shaped, and range from 5 to 75 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface laver:

0 to 9 inches, very dark grayish brown silt loam with 10 percent channers

### Subsoil:

- 9 to 15 inches, dark yellowish brown very friable silty clay loam, with strong brown iron accumulations and light brownish gray iron depletions, and 10 percent channers
- 15 to 23 inches, grayish brown friable silt loam, with strong brown iron accumulations and light brownish gray iron depletions, and 10 percent channers
- 23 to 33 inches, dark yellowish brown firm channery silt loam, with yellowish brown iron accumulations and light brownish gray iron depletions, and 25 percent channers
- 33 to 46 inches, brown firm channery silty clay loam, with yellowish brown iron accumulations and light brownish gray iron depletions, and 30 percent channers

### Substratum:

46 to 72 inches, grayish brown firm channery silty clay loam, with light olive brown and brown iron accumulations, and 30 percent channers

Included in mapping are small areas of poorly drained soils in slight depressions and along drainageways, and Almond soils which do not have a fragipan, and have more clay in the subsoil than the Napoli soil. Also included are small areas of Gretor soils, which are 20 to 40 inches deep over bedrock, and small areas of Napoli soils that have a channery surface layer. Included areas make up about 15 to 25 percent of this unit.

# Soil properties—

Permeability: Moderate or moderately slow in the surface and upper subsoil and slow or moderately slow in the fragipan and substratum

Available water capacity: Very low to moderate

Soil reaction: Very strongly acid to slightly acid in the surface, very strongly acid to moderately acid in the upper subsoil, very strongly acid to slightly acid in the fragipan, and from strongly acid to neutral in the substratum

Water table: Perched at a depth of 0.5 to 1.5 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are used for cultivated crops, hay, or pasture. Some of the acreage is woodland, or is idle land that is reverting to woodland.

This soil is moderately well suited to cultivated crops. The growing season is shorter for this soil than for nearby valley soils at lower elevations. The use of short-season or early maturing crop varieties is recommended. Unless a drainage system is installed, planting is delayed in spring and the soil can be used only for short-season annual crops, hay, or pasture. Harvesting crops during prolonged wet periods in fall is difficult. If drained and protected from erosion, the soil is suited to the crops commonly grown in the county. Interceptor drains can divert runoff from the higher adjacent soils, and tile and open-ditch drainage systems can remove excess water. Tile drains generally should be closely spaced because of the restricted permeability in the fragipan. Erosion can be controlled by stripcropping, farming on the contour, growing cover crops, and minimizing tillage. Incorporating crop residue into the soil and tilling only when the soil is at the proper moisture content improve tilth and help to maintain the content of organic matter.

This soil is well suited to water-tolerant hay and to late-spring pasture. Overgrazing and grazing when the soil is wet are the major concerns in managing pasture. Grazing when the soil is wet causes surface compaction, restricts plant growth, and can deplete the stand of pasture grasses, and thus result in serious erosion. Using proper stocking rates, rotating livestock grazing, deferring grazing when the soil is wet, controlling weeds and brush, and selecting water-tolerant species for seeding are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is moderate. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand the seasonal wetness grow best.

The depth to saturated zone is the main limitation if this soil is used as a site for dwellings with basements. Where outlets are available, installing drains around footings reduces the wetness. Also, sealing foundations and basement walls helps to prevent excessive wetness in basements.

The depth to saturated zone and frost action are the limitations if this soil is used as a site for local roads and streets. Installing roadside drainage systems and building on raised coarse textured fill material help to overcome these limitations.

The depth to saturated zone, depth to dense material, and restricted permeability are limitations on sites for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system in the area around the absorption field reduces the seasonal wetness, and adding permeable fill material helps to overcome the wetness and the restricted permeability.

Erosion is a serious hazard if the plant cover is removed during construction. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 3w.

# 60C—Napoli silt loam, 8 to 15 percent slopes

This soil is strongly sloping, very deep, and somewhat poorly drained. It occurs on hillsides, valley sides and the side slopes of dissecting drainageways. It receives runoff from the higher adjacent soils. It occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are oblong or rectangular, and range from 10 to 50 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 9 inches, very dark grayish brown silt loam with 10 percent channers

#### Subsoil:

- 9 to 15 inches, dark yellowish brown very friable silty clay loam, with strong brown iron accumulations and light brownish gray iron depletions, and 10 percent channers
- 15 to 23 inches, grayish brown friable silt loam, with strong brown iron accumulations and light brownish gray iron depletions, and 10 percent channers
- 23 to 33 inches, dark yellowish brown firm channery silt loam, with yellowish brown iron accumulations and light brownish gray iron depletions, and 25 percent channers
- 33 to 46 inches, brown firm channery silty clay loam, with yellowish brown iron accumulations and light brownish gray iron depletions, and 30 percent channers

#### Substratum:

46 to 72 inches, grayish brown firm channery silty clay loam, with light olive brown and brown iron accumulations, and 30 percent channers

Included in mapping are small areas of poorly drained soils in slight depressions and along drainageways, and Almond soils which do not have a fragipan, and have more clay in the subsoil than the Napoli soil. Also included are small areas of Gretor soils, which are 20 to 40 inches deep over bedrock, and small areas of Napoli soils that have a channery surface layer. Included areas make up about 15 to 25 percent of this unit.

### Soil properties—

Permeability: Moderate or moderately slow in the surface and upper subsoil and slow or moderately slow in the fragipan and substratum

Available water capacity: Very low to moderate

Soil reaction: Very strongly acid to slightly acid in the surface, very strongly acid to moderately acid in the upper subsoil, very strongly acid to slightly acid in the fragipan, and from strongly acid to neutral in the substratum

Water table: Perched at a depth of 0.5 to 1.5 feet from November through May Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are used for hay and pasture. Some acreage is woodland, or is idle land that is reverting to woodland. A few areas are used for small grain, corn, or hay grown in support of dairy farming.

This soil is moderately well suited to cultivated crops (fig. 10). The growing season is shorter for this soil than for nearby valley soils at lower elevations. The use of short-season or early maturing crop varieties is recommended. Unless a drainage system is installed, planting is delayed in spring, and the soil can be used only for short-season annual crops, hay, or pasture. Harvesting crops during prolonged wet periods in fall is difficult. If drained and protected from erosion, this soil is suited to the crops commonly grown in the county. Interceptor drains can divert runoff from the higher

adjacent soils, and tile and open-ditch drainage systems can remove excess water. Tile drains generally should be closely spaced because of the restricted permeability in the subsoil. Erosion can be controlled by stripcropping, farming on the contour, growing cover crops, and minimizing tillage. Incorporating crop residue into the soil and tilling only when the soil is at the proper moisture content improve tilth and help to maintain the content of organic matter.

This soil is well suited to water-tolerant hay and to late-spring pasture. Overgrazing and grazing when the soil is wet are the major concerns in managing pasture. Grazing when the soil is wet causes surface compaction, restricts plant growth, and can deplete the stand of pasture grasses and thus result in serious erosion. Using proper stocking rates, rotating livestock grazing, deferring grazing when the soil is wet, controlling weeds and brush, and selecting water-tolerant species for seeding are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand the seasonal wetness grow best. Building skid trails and roads across the slope minimizes gullying along the trails and roads.

The depth to saturated zone and slope are the main limitations if this soil is used as a site for dwellings with basements. Where outlets are available, installing drains around footings reduces the wetness. Also, sealing foundations and basement walls helps to prevent excessive wetness in basements. Land grading and building on the contour help to overcome the slope limitation.

The depth to saturated zone, slope, and frost action are limitations if this soil is used as a site for local roads and streets. Installing roadside drainage systems and



Figure 10.—Christmas tree plantation in an area of Napoli silt loam and Fremont silt loam, 8 to 15 percent slopes. The production of Christmas trees is an important industry in Cattaraugus County.

building on raised coarse textured fill material help to overcome these limitations. Land grading and building on the contour help to overcome the slope limitation.

The depth to saturated zone, depth to dense material, and restricted permeability are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system in the area around the absorption field reduces the seasonal wetness, and adding permeable fill material helps to overcome the wetness and the restricted permeability.

Erosion is a serious hazard if the plant cover is removed during construction. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 3e.

# 60D—Napoli silt loam, 15 to 25 percent slopes

This soil is moderately steep, very deep, and somewhat poorly drained. It occurs on valley sides that receive runoff from the higher adjacent soils. It occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are oblong or long and narrow, and range from 10 to 40 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 9 inches, very dark grayish brown silt loam with 10 percent channers

#### Subsoil:

- 9 to 15 inches, dark yellowish brown very friable silty clay loam, with strong brown iron accumulations and light brownish gray iron depletions, and 10 percent channers
- 15 to 23 inches, grayish brown friable silt loam, with strong brown iron accumulations and light brownish gray iron depletions, and 10 percent channers
- 23 to 33 inches, dark yellowish brown firm channery silt loam, with yellowish brown iron accumulations and light brownish gray iron depletions, and 25 percent channers
- 33 to 46 inches, brown firm channery silty clay loam, with yellowish brown iron accumulations and light brownish gray iron depletions, and 30 percent channers

#### Substratum:

46 to 72 inches, grayish brown firm channery silty clay loam, with light olive brown and brown iron accumulations, and 30 percent channers

Included in mapping are small areas of poorly drained soils in slight depressions and along drainageways, and Almond soils which do not have a fragipan, and have more clay in the subsoil than the Napoli soil. Also included are small areas of Gretor soils, which are 20 to 40 inches deep over bedrock, and small areas of Napoli soils that have a channery surface layer. Included areas make up about 15 to 25 percent of this unit.

#### Soil properties—

Permeability: Moderate or moderately slow in the surface and upper subsoil and slow or moderately slow in the fragipan and substratum

Available water capacity: Very low to moderate

Soil reaction: Very strongly acid to slightly acid in the surface, very strongly acid to moderately acid in the upper subsoil, very strongly acid to slightly acid in the fragipan, and from strongly acid to neutral in the substratum

Water table: Perched at a depth of 0.5 to 1.5 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are used as woodland. Some areas are used for hay, pasture, or row crops grown in support of dairy farming.

This soil is poorly suited to cultivated crops because of the hazard of erosion and the slope. The growing season is shorter for this soil than for nearby valley soils at lower elevations. The use of short-season or early maturing crop varieties is recommended. Cultivated crops should be grown only occasionally, and the maximum number of conservation practices should be used. Minimizing tillage, growing cover crops, incorporating crop residue into the soil, tilling across the slope, stripcropping, and including sod crops in the cropping system help to maintain good tilth, increase the content of organic matter, and control erosion. Because of the slope, operating farm machinery is difficult and hazardous on this soil.

This soil is better suited to hay and pasture than to cultivated crops. Overgrazing and grazing when the soil is wet restrict plant growth and can damage pasture plants. Erosion is a hazard in overgrazed areas. Using proper stocking rates, rotating livestock grazing, deferring grazing when the soil is wet, controlling weeds and brush, and selecting water-tolerant species for seeding are the main management concerns. Because the soil is naturally acid, applications of lime and fertilizer are needed to improve the growth of most pasture plants.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion is moderate and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand the seasonal wetness grow best. Building logging roads and skid trails on the contour helps control erosion and minimizes gullying along the trails.

The depth to saturated zone and slope are the main limitations if this soil is used as a site for dwellings with basements. Where outlets are available, installing drains around footings reduces the wetness. Also, sealing foundations and basement walls helps to prevent excessive wetness in basements. Land grading and building on the contour help to overcome the slope limitation.

The depth to saturated zone, slope, and frost action are limitations if this soil is used as a site for local roads and streets. Installing roadside drainage systems and building on raised coarse textured fill material help to overcome these limitations. Land grading and shaping help overcome the slope.

The slope, depth to saturated zone, depth to dense material, and restricted permeability are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Land grading and shaping help overcome the slope limitation. Installing a drainage system in the area around the absorption field reduces the seasonal wetness, and adding permeable fill material helps to overcome the wetness and the restricted permeability.

Erosion is a serious hazard if the plant cover is removed during construction. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 4e.

# 61B—Schuyler silt loam, 3 to 8 percent slopes

This soil is gently sloping, very deep, and moderately well drained. It is in convex areas on hilltops and upper side slopes that receive little runoff from the higher adjacent soils. Individual areas are oblong or circular, and range from 5 to 50 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 6 inches, dark grayish brown silt loam with 5 percent channers

#### Subsoil:

6 to 13 inches, light yellowish brown friable silt loam, with 5 percent channers
13 to 23 inches, yellowish brown friable silt loam, with strong brown iron accumulations and grayish brown iron depletions, and 10 percent channers
23 to 35 inches, light brownish gray firm channery silty clay loam, with strong brown iron accumulations and light olive gray iron depletions, and 20 percent channers

#### Substratum:

35 to 72 inches, olive brown firm channery silty clay loam, with yellowish brown iron accumulations and light olive gray iron depletions, and 20 percent channers Included in mapping are small areas of the somewhat poorly drained Fremont soils in slight depressions and along drainageways; Chautauqua soils which have less clay in the subsoil than the Schuyler soil; and Langford soils which have a fragipan in the subsoil. Also included are small areas of Towerville soils which have bedrock at a depth of 20 to 40 inches, and small areas of soils that have a channery surface layer. Included areas make up about 15 to 25 percent of this unit.

### Soil properties—

*Permeability:* Moderate in the surface layer, moderate or moderately slow in the subsoil, and slow or moderately slow in the substratum

Available water capacity: Moderate or high

Soil reaction: Very strongly acid to moderately acid throughout the profile Water table: At a depth of 1.5 to 2.0 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are wooded or are used for row crops grown in support of dairy farming. Some of the acreage is idle land that is reverting to brush. This soil meets the requirements for prime farmland.

This soil is well suited to most of the crops commonly grown in the county. Tillage may be delayed by wetness in spring. Draining the wetter included soils allows for earlier planting and more uniform management of the fields. Sufficient applications of fertilizer and lime are needed for most crops, especially legumes. Erosion is a hazard on long slopes in intensively cultivated areas. Minimizing tillage, farming on the contour, stripcropping, growing cover crops, and establishing diversions that break up long slopes help to control runoff and erosion. Growing cover crops, incorporating crop residue into the soil, and tilling only when the soil is at the proper moisture content help to maintain tilth and increase the content of organic matter.

This soil is well suited to pasture. Overgrazing and grazing when the soil is wet are the main concerns in managing pasture. The soil becomes compacted if it is grazed when wet. Overgrazing and surface compaction restrict plant growth, damage pasture plants, and increase the runoff rate. Applying a sufficient amount of lime and fertilizer, using proper stocking rates, rotating livestock grazing, and controlling weeds and brush are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is moderate. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival.

The depth to saturated zone is the main limitation if this soil is used as a site for dwellings with basements. Installing drains around footings, and sealing foundations and basement walls will help to prevent excessive wetness in basements.

Frost action and depth to saturated zone are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material, and installing roadside drainage systems help to overcome these limitations.

The depth to saturated zone and the restricted permeability in the substratum are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system in the area around the absorption field and adding permeable fill material help to overcome the seasonal wetness and the restricted permeability.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 2w.

## 61C—Schuyler silt loam, 8 to 15 percent slopes

This soil is strongly sloping, very deep, and moderately well drained. It is on hillsides and side slopes that receive runoff from the higher adjacent soils. Individual areas are rectangular, and range from 10 to 75 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 6 inches, dark grayish brown silt loam with 5 percent channers

#### Subsoil:

6 to 13 inches, light yellowish brown friable silt loam, with 5 percent channers
13 to 23 inches, yellowish brown friable silt loam, with strong brown iron accumulations and grayish brown iron depletions, and 10 percent channers
23 to 35 inches, light brownish gray firm channery silty clay loam, with strong brown iron accumulations and light olive gray iron depletions, and 20 percent channers

#### Substratum:

35 to 72 inches, olive brown firm channery silty clay loam, with yellowish brown iron accumulations and light olive gray iron depletions, and 20 percent channers

Included in mapping are small areas of the somewhat poorly drained Fremont soils in slight depressions and along drainageways; Chautauqua soils which have less clay in the subsoil than the Schuyler soil; and Langford soils which have a fragipan in the subsoil. Also included are small areas of Towerville soils which have bedrock at a depth of 20 to 40 inches, and small areas of soils that have a channery surface layer. Included areas make up about 15 to 25 percent of this unit.

#### Soil properties—

*Permeability:* Moderate in the surface layer, moderate or moderately slow in the subsoil, and slow or moderately slow in the substratum

Available water capacity: Moderate or high

Soil reaction: Very strongly acid to moderately acid throughout the profile *Water table:* At a depth of 1.5 to 2.0 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are wooded or are used for row crops grown in support of dairy farming. Some of the acreage is idle land that is reverting to brush.

This soil is moderately well suited to most of the crops commonly grown in the county. Tillage is delayed by wetness in spring. Draining the wetter included soils allows for earlier planting and more uniform management of the fields. Sufficient applications of lime are needed for most crops, especially legumes. Crops respond

well to sufficient application of fertilizer. Erosion is a hazard on long slopes in intensively cultivated areas. Minimizing tillage, farming on the contour, stripcropping, growing cover crops, and establishing diversions that break up long slopes help to control runoff and erosion. Growing cover crops, incorporating crop residue into the soil, and tilling only when the soil is at the proper moisture content help to maintain tilth and increase the content of organic matter.

This soil is well suited to pasture. Overgrazing and grazing when the soil is wet are the main concerns in managing pasture. The soil becomes compacted if it is grazed when wet. Overgrazing and surface compaction restrict plant growth, damage pasture plants, and increase the runoff rate. Applying the recommended amount of lime and fertilizer, using proper stocking rates, rotating livestock grazing, and controlling weeds and brush are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building logging roads and skid trails on the contour helps control erosion and minimizes gullying along the trails.

The depth to saturated zone and slope are the main limitations if this soil is used as a site for dwellings with basements. Installing drains around footings, and sealing foundations and basement walls help to prevent excessive wetness in basements. Land grading and building on the contour help to overcome the slope limitation.

Frost action, slope, and depth to saturated zone are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems help to overcome these limitations. Land grading and building on the contour help to overcome the slope limitation.

The depth to saturated zone and the restricted permeability in the substratum are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system in the area around the absorption field and adding permeable fill material help to overcome the seasonal wetness and the restricted permeability.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 3e.

# 61D—Schuyler silt loam, 15 to 25 percent slopes

This soil is moderately steep, very deep, and moderately well drained. It is on smooth hillsides and valley sides that receive runoff from the higher adjacent soils. Individual areas are oblong or long and narrow, and range from 10 to 75 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 6 inches, dark grayish brown silt loam with 5 percent channers

Subsoil:

6 to 13 inches, light yellowish brown friable silt loam, with 5 percent channers
13 to 23 inches, yellowish brown friable silt loam, with strong brown iron accumulations and grayish brown iron depletions, and 10 percent channers
23 to 35 inches, light brownish gray firm channery silty clay loam, with strong brown iron accumulations and light olive gray iron depletions, and 20 percent channers

#### Substratum

35 to 72 inches, olive brown firm channery silty clay loam, with yellowish brown iron accumulations and light olive gray iron depletions, and 20 percent channers

Included in mapping are small areas of the somewhat poorly drained Fremont soils in slight depressions and along drainageways; Chautauqua soils which have less clay in the subsoil than the Schuyler soil; and Langford soils which have a fragipan in the subsoil. Also included are small areas of Towerville soils which have bedrock at a depth or 20 to 40 inches, and small areas of soils that have a channery surface layer. Included areas make up about 15 to 25 percent of this unit.

#### Soil properties—

Permeability: Moderate in the surface layer, moderate or moderately slow in the subsoil, and slow or moderately slow in the substratum

Available water capacity: Moderate or high

Soil reaction: Very strongly acid to moderately acid throughout the profile Water table: At a depth of 1.5 to 2.0 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most of the acreage is woodland, or is idle land that is reverting to brush. Some areas are used for hay and pasture. A small acreage is used for row crops.

This soil is poorly suited to cultivated crops because of the slope and the severe hazard of erosion. The slope limits the use of farm equipment. Tillage is slightly delayed by wetness in spring. Cultivated crops should be grown only occasionally, and the maximum number of conservation practices should be used. Minimizing tillage, growing cover crops, and establishing diversions that break up long slopes and divert excess runoff help to control erosion. Where the slope permits, farming on the contour and stripcropping are suitable. Because tilling the soil is difficult and erosion is a hazard, long-term sod crops are more practical than most other crops. Applying the recommended amounts of lime and fertilizer is needed to maintain good crop growth.

This soil generally is better suited to hay and pasture than to cultivated crops. Grazing when the soil is wet and overgrazing are the main concerns in managing pasture. Grazing when the soil is wet causes surface compaction and damage to the pasture. Overgrazing increases the hazard of erosion. Plowing across the slope and leaving strips of sod help to control erosion when an area is reseeded. Using proper stocking rates, rotating livestock grazing, applying a sufficient amount of lime and fertilizer, and controlling weeds and brush are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion is moderate and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building logging roads and skid trails on the contour helps control erosion and minimizes gullying along the trails.

The depth to saturated zone and the slope are the main limitations if this soil is used as a site for dwellings with basements. Installing drains around footings and sealing foundations and basement walls help to prevent excessive wetness in basements. Installing interceptor drains and diversion ditches in upslope areas diverts surface and subsurface water from the dwellings. Land grading and shaping help to overcome the slope.

Slope, frost action, and depth to saturated zone are the main limitations if this soil is used as a site for local roads and streets. Land grading and building on the contour help to overcome the slope limitation. Adding coarse textured subgrade or base material, and installing roadside drainage systems reduce the wetness and the potential for frost action.

The depth to saturated zone, slope, and the restricted permeability in the substratum are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Extensive land modification is needed to overcome the slope.

Installing a subsurface drainage system upslope from the absorption field and adding permeable fill material help to overcome the seasonal wetness and the restricted permeability.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 4e.

## 61E—Schuyler silt loam, 25 to 35 percent slopes

This soil is steep, very deep, and moderately well drained. It is on hillsides and valley sides that receive runoff from the higher adjacent soils. Many areas along the valley are deeply dissected by V-shaped gullies. Individual areas are elongated or occur as narrow strips on the side slopes. They commonly are 20 to 75 acres in size, but range from 10 to several hundred acres.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 6 inches, dark grayish brown silt loam with 5 percent channers

#### Subsoil:

6 to 13 inches, light yellowish brown friable silt loam, with 5 percent channers
13 to 23 inches, yellowish brown friable silt loam, with strong brown iron accumulations and grayish brown iron depletions, and 10 percent channers
23 to 35 inches, light brownish gray firm channery silty clay loam, with strong brown iron accumulations and light olive gray iron depletions, and 20 percent channers

#### Substratum:

35 to 72 inches, olive brown firm channery silty clay loam, with yellowish brown iron accumulations and light olive gray iron depletions, and 20 percent channers

Included in mapping are small areas of the somewhat poorly drained Fremont soils in slight depressions and along drainageways; Chadakoin soils which have less clay in the subsoil than the Schuyler soil; and Langford soils which have a fragipan in the subsoil. Also included are small areas of Towerville soils which have bedrock at a depth or 20 to 40 inches, and small areas of soils that have a channery surface layer. Included areas make up about 15 to 25 percent of this unit.

#### Soil properties—

*Permeability:* Moderate in the surface layer, moderate or moderately slow in the subsoil, and slow or moderately slow in the substratum

Available water capacity: Moderate or high

Soil reaction: Very strongly acid to moderately acid throughout the profile Water table: At a depth of 1.5 to 2.0 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are wooded and provide wildlife habitat. Some of the less sloping areas are idle, or are used as pasture.

This soil is not suited to cultivated crops or hay because of the slope, and the very severe hazard of erosion. Operating farm equipment is very difficult because of the slope. A plant cover that controls runoff and erosion is essential.

The less sloping areas of this map unit can be used as pasture on limited basis. A good plant cover is needed. Prevention of overgrazing helps to protect the soil from erosion and gullying. Reseeding pastures is difficult because of the slope. Sufficient applications of lime and fertilizer are needed to improve native pastures.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion is moderate and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building logging roads and skid trails on the contour helps control erosion and minimizes gullying along the trails.

The slope and depth to saturated zone are the main limitations if this soil is used as a site for dwellings with basements. Land grading and shaping may help to overcome the steep slope. Designing the dwellings so that they conform to the natural slope of the land reduces the amount of grading required. Installing drains around footings and sealing foundations and basement walls help to prevent excessive wetness in basements. Installing interceptor drains and diversion ditches in upslope areas diverts surface and subsurface water from the dwellings.

Slope, frost action and depth to saturated zone are the main limitations if this soil is used as a site for local roads and streets. Land grading and building on the contour help to overcome the slope limitation. Adding coarse textured subgrade or base material and installing roadside drainage systems reduce the wetness and the potential for frost action.

The slope, depth to saturated zone, and the restricted permeability in the substratum are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Extensive land modification is needed to overcome the slope.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 6e.

## 61F—Schuyler silt loam, 35 to 50 percent slopes

This soil is very steep, very deep, and moderately well drained. It is on hillsides and valley sides that receive runoff from the higher adjacent soils. Many areas along the valley are deeply dissected by V-shaped gullies. Individual areas are elongated or occur as narrow strips on the side slopes. They commonly are 20 to 75 acres in size, but range from 10 to several hundred acres.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 6 inches, dark grayish brown silt loam with 5 percent channers

#### Subsoil:

6 to 13 inches, light yellowish brown friable silt loam, with 5 percent channers
13 to 23 inches, yellowish brown friable silt loam, with strong brown iron accumulations and grayish brown iron depletions, and 10 percent channers
23 to 35 inches, light brownish gray firm channery silty clay loam, with strong brown iron accumulations and light olive gray iron depletions, and 20 percent channers

#### Substratum:

35 to 72 inches, olive brown firm channery silty clay loam, with yellowish brown iron accumulations and light olive gray iron depletions, and 20 percent channers

Included in mapping are small areas of the somewhat poorly drained Fremont soils along drainageways and in seepage spots; the well drained Chadakoin soils which have less clay in the subsoil than the Schuyler soil; Towerville soils which have bedrock at a depth or 20 to 40 inches; and small areas of soils that have a channery surface layer. Also included are small areas of soils that are similar to the Schuyler soil, but are well drained and narrow bands of Udifluvents on the flood plains along the streams that dissect the unit. Included areas make up about 15 to 25 percent of this unit.

#### Soil properties—

Permeability: Moderate in the surface layer, moderate or moderately slow in the subsoil, and slow or moderately slow in the substratum

Available water capacity: Moderate or high

Soil reaction: Very strongly acid to moderately acid throughout the profile Water table: At a depth of 1.5 to 2.0 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are wooded and provide wildlife habitat.

This soil is not suited to cultivated crops, hay or pasture. The slope and the very severe hazard of erosion are the main management concerns. The soil is too steep for the safe operation of farm machinery. A plant cover that controls runoff and erosion is essential.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion is severe and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building logging roads and skid trails and roads across the slope helps to reduce erosion and minimizes gullying along the trails and roads.

Construction is extremely difficult or impractical on this soil. The slope is the main limitation if this soil is used as a site for local roads and streets, dwellings with basements, and septic tank absorption fields. Erosion is a very severe hazard on construction sites. In most areas the native plant cover should not be removed.

The capability subclass is 7e.

## 62B—Mardin channery silt loam, 3 to 8 percent slopes

This soil is gently sloping, very deep, and moderately well drained. It is on convex hilltops and on side slopes that receive runoff from the higher adjacent soils. Individual areas are oblong and range from 10 to 50 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 6 inches, dark grayish brown channery silt loam with 15 percent channers

#### Subsoil

6 to 14 inches, yellowish brown friable silt loam, with 10 percent channers 14 to 17 inches, light yellowish brown friable silt loam, with strong brown iron accumulations and gray iron depletions, and 10 percent channers

17 to 29 inches, olive brown firm channery silt loam, with strong brown iron accumulations and gray iron depletions, and 15 percent channers

29 to 41 inches, olive brown very firm channery silt loam, with strong brown iron accumulations and gray iron depletions, and 15 percent channers

#### Substratum:

41 to 72 inches, grayish brown firm channery silt loam, with dark yellowish brown iron accumulations, and 20 percent channers

Included in mapping are small areas of the somewhat poorly drained Volusia soils along drainageways and in seepage spots; Chautauqua soils which do not have a fragipan; Chadakoin soils which are better drained; and Schuyler soils which do not have a fragipan and have more clay in the subsoil than the Mardin soil. Also included are small areas of Mardin soils that do not have channery fragments in the surface layer. Included areas make up about 10 to 20 percent of the unit.

#### Soil properties—

Permeability: Moderate in the surface layer and subsoil above the fragipan, slow or very slow in the fragipan and substratum

Available water capacity: Very low to low

Soil reaction: Very strongly acid to moderately acid above the fragipan, very strongly acid to slightly acid in the fragipan, and strongly acid to neutral in the substratum

Water table: Perched at a depth of 1.1 to 2.0 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most of the acreage is used for row crops grown in support of dairy farming. The rest is woodland, pasture, or idle land.

This soil is well suited to most of the crops commonly grown in the county. The surface layer has many flat stone fragments that may interfere with tillage and harvesting operations but do not prevent cultivation. Draining the wetter included soils by random tile drains allows for earlier planting and more uniform management of fields. Sufficient applications of lime are needed if legumes are to be established. Erosion is a hazard on long slopes and intensively cultivated areas. Farming on the contour, stripcropping, growing cover crops, and establishing diversions that break up long slopes help to control runoff and erosion. Minimizing tillage, growing cover crops, incorporating crop residue into the soil, and mulching increase the rate of water infiltration during the growing season and help to maintain tilth.

This soil is well suited to pasture. Overgrazing and grazing when the soil is wet are the main concerns in managing pasture. The soil becomes compacted if the pasture is grazed during wet periods. Overgrazing and surface compaction restrict plant growth, damage pasture plants, and increase the rate of runoff. Applying a sufficient amount of lime and fertilizer, using proper stocking rates, rotating livestock grazing, and controlling weeds and brush are the main management concerns.

The potential productivity of this soil for sugar maple is moderate (fig. 11). The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is moderate. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival.

The depth to saturated zone is the main limitation if this soil is used as a site for dwellings with basements. Installing drains around footings and sealing foundations and basement walls help to prevent excessive wetness in basements. Installing interceptor drains and diversion ditches in upslope areas diverts surface and subsurface water from the dwellings.

Frost action and depth to saturated zone are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems help to overcome these limitations.

The depth to saturated zone, depth to dense material, and restricted permeability are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste systems are installed. Installing a drainage system in the area around the absorption fields and adding permeable fill material help to overcome seasonal wetness and the restricted permeability.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 2w.

# 62C—Mardin channery silt loam, 8 to 15 percent slopes

This soil is strongly sloping, very deep, and moderately well drained. It is on hillsides and side slopes that receive runoff from the higher adjacent soils. Individual areas are rectangular, and range from 5 to 30 acres in size.



Figure 11.—An improved stand of sugar maple on Mardin channery silt loam, 3 to 8 percent slopes. More than 65 percent of Cattaraugus County is in woodland; commercial timber production is a viable industry.

The typical sequence, depth, and composition of the layers of this soil are as follows—

#### Surface layer:

0 to 6 inches, dark grayish brown channery silt loam with 15 percent channers *Subsoil:* 

6 to 14 inches, yellowish brown friable silt loam, with 10 percent channers 14 to 17 inches, light yellowish brown friable silt loam, with strong brown iron accumulations and gray iron depletions, and 10 percent channers

17 to 29 inches, olive brown firm channery silt loam, with strong brown iron accumulations and gray iron depletions, and 15 percent channers

29 to 41 inches, olive brown very firm channery silt loam, with strong brown iron accumulations and gray iron depletions, and 15 percent channers

#### Substratum:

41 to 72 inches, grayish brown firm channery silt loam, with dark yellowish brown iron accumulations, and 20 percent channers

Included in mapping are small areas of the somewhat poorly drained Volusia soils along drainageways and in seepage spots; Chadakoin soils which are better drained; Chautauqua soils which do not have a fragipan; Schuyler soils which do not have a fragipan and have more clay in the subsoil than the Mardin soil; and Mardin soils that do not have channery fragments in the surface layer. Included areas make up about 10 to 20 percent of the unit.

#### Soil properties—

Permeability: Moderate in the surface layer and subsoil above the fragipan, slow or very slow in the fragipan and substratum

Available water capacity: Very low to low

Soil reaction: Very strongly acid to moderately acid above the fragipan, very strongly acid to slightly acid in the fragipan, and strongly acid to neutral in the substratum

Water table: Perched at a depth of 1.1 to 2.0 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most of the acreage is used for row crops grown in support of dairy farming. The rest is woodland, pasture, or idle land.

This soil is moderately well suited to row crops if erosion and runoff are controlled. The surface layer has many flat stone fragments which may interfere with tillage and harvesting operations but do not prevent cultivation. Draining the wetter included soils by random tile drains allows for earlier planting and more uniform management of fields. Sufficient applications of lime are needed if legumes are to be established. Erosion is a hazard on long slopes and intensively cultivated areas. Farming on the contour, stripcropping, growing cover crops, and establishing diversions that break up long slopes help to control runoff and erosion. Minimizing tillage, growing cover crops, incorporating crop residue into the soil, and mulching increase the rate of water infiltration during the growing season and help to maintain tilth. Areas where conservation practices cannot be applied are better suited to deep-rooted legumes than to cultivated crops.

This soil is well suited to pasture. Overgrazing is the main concern in managing pasture because it can damage pasture plants. Grazing when the soil is wet early in spring can result in surface compaction, damage to the pasture and severe erosion. Rotating livestock grazing, using proper stocking rates, controlling weeds and brush, and deferring grazing when the soil is wet are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building logging roads and skid trails on the contour helps control erosion and minimizes gullying along the trails.

The depth to saturated zone and the slope are the main limitations if this soil is used as a site for dwellings with basements. Installing drains around footings and sealing foundations and basement walls help to prevent excessive wetness in basements. Installing interceptor drains and diversion ditches in upslope areas diverts surface and subsurface water from the dwellings. Land grading and shaping will help to overcome the slope.

Frost action, slope, and depth to saturated zone are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems help to overcome these limitations. Land grading and building on the contour help to overcome the slope limitation.

The depth to saturated zone, depth to dense material, and restricted permeability are limitations on sites for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste systems are installed. Installing a drainage system in the area around the absorption field and adding permeable fill material help to overcome seasonal wetness and the restricted permeability.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 3e

## 62D—Mardin channery silt loam, 15 to 25 percent slopes

This soil is moderately steep, very deep, and moderately well drained. It is on smooth hillsides and valley sides that receive runoff from the higher adjacent soils. Individual areas are oblong and narrow, and range from 10 to 40 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 6 inches, dark grayish brown channery silt loam with 15 percent channers

#### Subsoil:

6 to 14 inches, yellowish brown friable silt loam, with 10 percent channers 14 to 17 inches, light yellowish brown friable silt loam, with strong brown iron accumulations and gray iron depletions, and 10 percent channers

17 to 29 inches, olive brown firm channery silt loam, with strong brown iron accumulations and gray iron depletions, and 15 percent channers

29 to 41 inches, olive brown very firm channery silt loam, with strong brown iron accumulations and gray iron depletions, and 15 percent channers

#### Substratum:

41 to 72 inches, grayish brown firm channery silt loam, with dark yellowish brown iron accumulations, and 20 percent channers

Included in mapping are small areas of the somewhat poorly drained Volusia soils along drainageways and at the base of slopes, where seepage water comes to the surface; Schuyler soils, which do not have a fragipan and are finer textured than the Mardin soil; Chautauqua soils which do not have a fragipan; Chadakoin soil which are better drained; and Valois soils which are friable, do not have a fragipan, and are along the lower sides of valleys. Included areas make up about 10 to 20 percent of this unit.

#### Soil properties—

Permeability: Moderate in the surface layer and subsoil above the fragipan, slow or very slow in the fragipan and substratum

Available water capacity: Very low to low

Soil reaction: Very strongly acid to moderately acid above the fragipan, very strongly acid to slightly acid in the fragipan, and strongly acid to neutral in the substratum Water table: Perched at a depth of 1.1 to 2.0 feet from November through May Flooding hazard: None

Depth to bedrock: More than 6 feet

Most of the acreage is woodland or is idle land that is reverting to brush. Some areas are used for hay, pasture, or row crops.

This soil is poorly suited to cultivated crops because of the slope and the severe hazard of erosion. The slope limits the use of farm equipment. Tillage is slightly delayed in spring because of the wetness. Channery fragments on the surface may interfere with tillage and cause excessive wear on machinery. Cultivated crops should be grown only occasionally, and the maximum number of conservation practices should be used. Growing cover crops, minimizing tillage, and establishing diversions that break up long slopes and divert excess runoff help to control erosion. Where the slope permits, farming on the contour and stripcropping are suitable. Because tilling the soil is difficult and erosion is a hazard, long-term sod crops are more practical than most other crops. Applying the recommended amounts of lime and fertilizer is needed to maintain good crop growth.

This soil is generally better suited to hay and pasture than to cultivated crops. Grazing when the soil is wet and overgrazing are main concerns in managing

pasture. Grazing when the soil is wet causes surface compaction and damage to the pasture. Overgrazing increases the hazard of erosion. Plowing across the slope and leaving strips of sod help to control erosion when an area is reseeded. Rotating livestock grazing, using proper stocking rates, controlling weeds and brush, deferring grazing when the soil is wet, and applying the proper kinds and amounts of lime and fertilizer are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion is moderate and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building skid trails and roads across the slope minimizes gullying along the trails and roads.

The depth to saturated zone and the slope are the main limitations if this soil is used as a site for dwellings with basements. Installing drains around footings and sealing foundations and basement walls help to prevent excessive wetness in basements. Installing interceptor drains and diversion ditches in upslope areas diverts surface and subsurface water from the dwellings. Land grading and shaping will help to overcome the slope.

Slope, frost action, and depth to saturated zone are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems help to overcome these limitations. Land grading and building on the contour help to overcome the slope limitation.

The slope, depth to saturated zone, depth to dense material, and restricted permeability are limitations on sites for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste systems are installed. Extensive land modification is needed to overcome the slope. Installing a subsurface drainage system upslope from the absorption field and adding permeable fill material help to overcome seasonal wetness and the restricted permeability.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 4e.

# 63B—Langford channery silt loam, 3 to 8 percent slopes

This soil is gently sloping, very deep, and moderately well drained. It is on convex hilltops and on side slopes that receive runoff from the higher adjacent soils. Individual areas are oblong and range from 10 to 75 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 7 inches, dark grayish brown channery silt loam with 15 percent channers

Subsoil:

7 to 21 inches, yellowish brown very friable silt loam, with 5 percent channers 21 to 25 inches, brown friable silt loam, with strong brown iron accumulations and light brownish gray iron depletions, and 10 percent channers

25 to 34 inches, dark yellowish brown firm channery silt loam, with strong brown iron accumulations and gray iron depletions, and 15 percent channers

34 to 44 inches, brown firm gravelly silt loam, with gray iron depletions, and 20 percent gravel

#### Substratum:

44 to 72 inches, brown firm gravelly silt loam, with yellowish brown iron accumulations and light brownish gray iron depletions and 15 percent gravel

Included in mapping are small areas of somewhat poorly drained Erie soils along drainageways and in seepage spots; Chautauqua soils which do not have a fragipan; and Schuyler soils which do not have a fragipan and have more clay in the subsoil than the Langford soil. Also included are spots of Langford soils that have a gravelly surface layer. Included areas make up about 10 to 20 percent of this unit.

#### Soil properties—

Permeability: Moderate in the surface layer and in the upper part of the subsoil, slow or very slow in the fragipan and substratum

Available water capacity: Very low to moderate

Soil reaction: Very strongly acid to slightly acid in the surface layer, strongly acid to neutral in the upper subsoil, strongly acid to slightly alkaline in the fragipan, and neutral to moderately alkaline in the substratum

Water table: Perched at a depth of 1.2 to 2.0 feet from November through May Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are used for row crops, alfalfa, hay, or pasture. The row crops are grown in support of dairy farming. Some of the acreage is woodland, or is idle land that is reverting to brush.

This soil is well suited to most of the crops commonly grown in the county, particularly corn, small grain, and alfalfa. A subsurface drainage system may be needed in wet spots, and diversion ditches are needed to control runoff in many fields. Erosion is a hazard on long slopes. Measures that maintain tilth and increase the content of organic matter include tilling only when the soil is at the proper moisture content, incorporating crop residue into the soil, and growing cover crops. Minimizing tillage, farming on the contour, and stripcropping help to control erosion on long slopes.

This soil is well suited to pasture. Overgrazing is a major concern in managing pasture because it can damage pasture plants. Grazing early in spring, when the soil is wet, can result in surface compaction and can damage the pasture. Rotating livestock grazing, using proper stocking rates, controlling weeds and brush, and deferring grazing when the soil is wet are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is moderate. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival.

The depth to saturated zone is the main limitation if this soil is used as a site for dwellings with basements. Installing drains around footings and sealing foundations and basement walls help to prevent excessive wetness in basements. Installing interceptor drains and diversion ditches in upslope areas diverts surface and subsurface water from the dwellings.

Frost action and depth to saturated zone are the main limitations on sites for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems help to overcome these limitations.

The depth to saturated zone, depth to dense material, and restricted permeability are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system in the area around the absorption field and adding permeable fill material help to overcome the seasonal wetness and the restricted permeability.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 2w.

## 63C—Langford channery silt loam, 8 to 15 percent slopes

This soil is strongly sloping, very deep, and moderately well drained. It is on hillsides and side slopes that receive runoff from the higher adjacent soils. Individual areas are oblong, and range from 10 to 50 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 7 inches, dark grayish brown channery silt loam with 15 percent channers

#### Subsoil:

7 to 21 inches, yellowish brown very friable silt loam, with 5 percent channers 21 to 25 inches, brown friable silt loam, with strong brown iron accumulations and light brownish gray iron depletions, and 10 percent channers

25 to 34 inches, dark yellowish brown firm channery silt loam, with strong brown iron accumulations and gray iron depletions, and 15 percent channers

34 to 44 inches, brown firm gravelly silt loam, with gray iron depletions, and 20 percent gravel

#### Substratum:

44 to 72 inches, brown firm gravelly silt loam, with yellowish brown iron accumulations and light brownish gray iron depletions, and 15 percent gravel

Included in mapping are small areas of somewhat poorly drained Erie soils along drainageways and in seepage spots; Chautauqua soils which do not have a fragipan; and Schuyler soils which do not have a fragipan and have more clay in the subsoil than the Langford soil. Also included are small areas of Langford soils that have a gravelly surface layer. Included areas make up about 10 to 20 percent of this unit.

#### Soil properties—

Permeability: Moderate in the surface layer and in the upper part of the subsoil slow or very slow in the fragipan and substratum

Available water capacity: Very low to moderate

Soil reaction: Very strongly acid to slightly acid in the surface layer, strongly acid to neutral in the upper subsoil, strongly acid to slightly alkaline in the fragipan, and neutral to moderately alkaline in the substratum

Water table: Perched at a depth of 1.2 to 2.0 feet from November through May Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas have been cleared and are used for row crops, alfalfa, hay, or pasture. The row crops are grown in support of dairy farming. Some of the acreage is woodland, or is idle land that is reverting to brush.

This soil is moderately well suited to cultivated crops. If a drainage system is installed, the soil can be used for many crops, including corn, small grain, and alfalfa. The seasonal wetness may delay planting for a short period in spring. Erosion is a serious hazard on long slopes and in intensively cultivated areas. Contour farming and stripcropping in combination with diversions or grassed waterways help to control erosion. Incorporating crop residue into the soil, rotating crops, minimizing tillage, and growing cover crops help to maintain tilth, control erosion, and increase the content of organic matter.

This soil is well suited to pasture. Overgrazing is a major concern in managing pasture because it can damage pasture plants. Grazing early in spring, when the soil is wet, can result in surface compaction, damage to the pasture, and severe erosion. Rotating livestock grazing, using proper stocking rates, controlling weeds and brush, and deferring grazing when the soil is wet are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival.

The depth to saturated zone and the slope are the main limitations if this soil is used as a site for dwellings with basements. Installing drains around footings, and sealing foundations and basement walls help to prevent excessive wetness in basements. Installing interceptor drains and diversion ditches in upslope areas diverts surface and subsurface water from the dwellings. Land grading and shaping help to overcome the slope.

Frost action, slope, and depth to saturated zone are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material, and installing roadside drainage systems help to overcome these limitations. Land grading and building on the contour help to overcome the slope limitation.

The depth to saturated zone, depth to dense material, and restricted permeability are limitations on sites for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system in the area around the absorption field, and adding permeable fill material help overcome the seasonal wetness and the restricted permeability.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 3e.

# 63D—Langford channery silt loam, 15 to 25 percent slopes

This soil is moderately steep, very deep, and moderately well drained. It is on hillsides and side slopes that receive runoff from the higher adjacent soils. Individual areas are oblong, and range from 10 to 50 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 7 inches, dark grayish brown channery silt loam with 15 percent channers

#### Subsoil:

7 to 21 inches, yellowish brown very friable silt loam, with 5 percent channers 21 to 25 inches, brown friable silt loam, with strong brown iron accumulations and light brownish gray iron depletions, and 10 percent channers

25 to 34 inches, dark yellowish brown firm channery silt loam, with strong brown iron accumulations and gray iron depletions, and 15 percent channers

34 to 44 inches, brown firm gravelly silt loam, with gray iron depletions, and 20 percent gravel

#### Substratum:

44 to 72 inches, brown firm gravelly silt loam, with yellowish brown iron accumulations and light brownish gray iron depletions, and 15 percent gravel

Included in mapping are small areas of somewhat poorly drained Erie soils along drainageways and in seepage spots; Chautauqua soils which do not have a fragipan; and Schuyler soils which do not have a fragipan and have more clay in the subsoil than the Langford soil. Also included are small areas of Langford soils that have a gravelly surface layer. Included areas make up about 10 to 20 percent of this unit.

#### Soil properties—

Permeability: Moderate in the surface layer and in the upper part of the subsoil slow or very slow in the fragipan and substratum

Available water capacity: Very low to moderate

Soil reaction: Very strongly acid to slightly acid in the surface layer, strongly acid to neutral in the upper subsoil, strongly acid to slightly alkaline in the fragipan, and neutral to moderately alkaline in the substratum

Water table: Perched at a depth of 1.2 to 2.0 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most of the acreage is woodland, or is idle land that is reverting to brush. Some areas are used for hay, pasture, or row crops.

This soil is poorly suited to cultivated crops because of the slope and the severe hazard of erosion. The slope limits the use of farm equipment. Tillage is slightly delayed in spring because of the wetness. Channery fragments on the surface may interfere with tillage and cause excessive wear on machinery. Cultivated crops should be grown only occasionally, and the maximum number of conservation practices should be used. Growing cover crops, minimizing tillage, and establishing diversions that break up long slopes, and divert excess runoff help to control erosion. Where the slope permits, farming on the contour and stripcropping are suitable. Because tilling the soil is difficult and erosion is a hazard, long-term sod crops are more practical than most other crops. Applying a sufficient amount of lime and fertilizer is needed to maintain good crop growth.

This soil is better suited to hay and pasture than to cultivated crops. Grazing when the soil is wet and overgrazing are main concerns in managing pasture. Grazing when the soil is wet causes surface compaction, and damage to the pasture. Overgrazing increases the hazard of erosion. Plowing across the slope and leaving strips of sod help to control erosion when an area is reseeded. Rotating livestock grazing, using proper stocking rates, controlling weeds and brush, deferring grazing when the soil is wet, and applying the proper kinds and amounts of lime and fertilizer are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion is moderate and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building skid trails and roads across the slope minimizes gullying along the trails and roads.

The depth to saturated zone and the slope are the main limitations if this soil is used as a site for dwellings with basements. Installing drains around footings, and sealing foundations and basement walls help to prevent excessive wetness in basements. Installing interceptor drains and diversion ditches in upslope areas diverts surface and subsurface water from the dwellings. Land grading and shaping help to overcome the slope limitation.

Slope, frost action and depth to saturated zone are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems help to overcome these limitations. Land grading and building on the contour help to overcome the slope limitation.

The slope, depth to saturated zone, depth to dense material, and restricted permeability are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste systems are installed. Extensive land modification is needed to overcome the slope. Installing a subsurface drainage system upslope from the absorption field, and adding permeable fill material help overcome the seasonal wetness and the restricted permeability.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 4e.

# 64C—Mardin channery silt loam, 8 to 15 percent slopes, very stony

This soil is strongly sloping, very deep, and moderately well drained. It is on hillsides and side slopes that receive runoff from the higher adjacent soils. The soil surface is covered by 0.1 to 3 percent stones. Individual areas are oblong, and range from 5 to 30 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 6 inches, dark grayish brown channery silt loam with 15 percent channers

#### Subsoil

6 to 14 inches, yellowish brown friable silt loam, with 10 percent channers 14 to 17 inches, light yellowish brown friable silt loam, with strong brown iron accumulations and gray iron depletions, and 10 percent channers

17 to 29 inches, olive brown firm channery silt loam, with strong brown iron accumulations and gray iron depletions, and 15 percent channers

29 to 41 inches, olive brown very firm channery silt loam, with strong brown iron accumulations and gray iron depletions, and 15 percent channers

#### Substratum:

41 to 72 inches, grayish brown firm channery silt loam, with dark yellowish brown iron accumulations, and 20 percent channers

Included in mapping are small areas of the somewhat poorly drained Volusia soils along drainageways and in seepage spots; Chautauqua soils which do not have a fragipan; Schuyler soils which do not have a fragipan, and have more clay in the subsoil than the Mardin soil. Also included area areas that have fewer stones on the surface and areas that are extremely stony. Included areas make up about 10 to 20 percent of the unit.

#### Soil properties—

Permeability: Moderate in the surface layer and subsoil above the fragipan, slow or very slow in the fragipan and substratum

Available water capacity: Very low to low

Soil reaction: Very strongly acid to moderately acid above the fragipan, very strongly acid to slightly acid in the fragipan, and strongly acid to neutral in the substratum Water table: Perched at a depth of 1.1 to 2.0 feet from November through May Flooding hazard: None

Depth to bedrock: More than 6 feet

Most of the acreage is woodland, pasture, or idle land.

This soil is poorly suited to row crops and improved pasture due to the excessive number and size of stones on the surface. The stones make tillage and harvesting operations impossible or impractical.

This soil is moderately well suited to unimproved pasture. Overgrazing is the main concern in managing pasture because it can damage pasture plants. Grazing when the soil is wet early in spring can result in surface compaction, damage to the pasture and severe erosion. Using proper stocking rates, controlling weeds and brush, and deferring grazing when the soil is wet are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building logging roads and skid trails on the contour helps control erosion and minimizes gullying along the trails.

The depth to saturated zone and the slope are the main limitations if this soil is used as a site for dwellings with basements. Installing drains around footings and sealing foundations and basement walls help to prevent excessive wetness in basements. Installing interceptor drains and diversion ditches in upslope areas diverts surface and subsurface water from the dwellings. Land grading and shaping will help to overcome the slope.

Frost action, slope, and depth to saturated zone are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems help to overcome these limitations. Land grading and building on the contour help to overcome the slope limitation.

The depth to saturated zone, depth to dense material, and restricted permeability are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste systems are installed. Installing a drainage system in the area around the absorption field and adding permeable fill material help to overcome seasonal wetness and the restricted permeability.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 6s.

# 66B—Volusia channery silt loam, 3 to 8 percent slopes, very stony

This soil is gently sloping, very deep, and somewhat poorly drained. It is on hilltops, side slopes and concave toeslopes in uplands where it receives runoff from the higher adjacent soils. The soil surface is covered by 0.1 to 3 percent stones. Individual areas are oblong or rectangular in shape, and range from 10 to 50 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 7 inches, very dark grayish brown channery silt loam with 15 percent channers

#### Subsurface layer:

7 to 16 inches, light brownish gray friable channery loam, with yellowish brown iron accumulations, and 25 percent channers

#### Subsoil:

16 to 45 inches, brown very firm channery silt loam, with yellowish brown iron accumulations and grayish brown iron depletions, and 30 percent channers

#### Substratum:

45 to 68 inches, brown firm very channery silt loam, with yellowish brown iron accumulations and light brownish gray iron depletions, and 35 percent channers 68 to 72 inches, grayish brown firm very gravelly loam, with 45 percent gravel

Included in mapping are small areas of the poorly drained Chippewa soils in slight depressions and along drainageways; Busti soils which are coarser textured and do not have a fragipan; and Fremont soils which do not have a fragipan and have more clay in the subsoil than the Volusia soil. Small areas of the moderately well drained

Mardin soils are included on the higher, more sloping positions of the landscape. Small spots of Orpark soils which have bedrock within a depth of 40 inches, are also included. Some areas have fewer stones on the surface and some areas are extremely stony. Included areas make up about 15 to 25 percent of this unit.

#### Soil properties—

*Permeability:* Moderate in the surface and subsurface layer, and slow or very slow in the fragipan layer and substratum

Available water capacity: Very low or low

Soil reaction: Very strongly acid to moderately acid in the surface layer, very strongly acid to slightly acid in the subsurface and upper subsoil, strongly acid to slightly acid in the fragipan, and from strongly acid to slightly alkaline in the substratum

Water table: Perched at a depth of .5 to 1.5 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most of the acreage is woodland, pasture, or idle land.

This soil is poorly suited to row crops and improved pasture due to the excessive number and size of stones on the surface and seasonal wetness. The stones make tillage and harvesting operations impossible or impractical.

This soil is moderately well suited to water-tolerant hay and to late-spring pasture. Overgrazing and grazing when the soil is wet are major concerns in managing pasture. Grazing when the soil is wet causes surface compaction, restricts plant growth, and can deplete the stand of pasture grasses, and thus result in serious erosion. Using proper stocking rates, rotating livestock grazing, deferring grazing when the soil is wet, controlling weeds and brush, and selecting water-tolerant species for seeding are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is moderate. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand the seasonal wetness grow best.

The depth to saturated zone is the main limitation if this soil is used as a site for dwellings with basements. Installing drains around footings and sealing foundations and basement walls help to prevent excessive wetness in basements. Installing interceptor drains and diversion ditches in upslope areas diverts surface and subsurface water from the dwellings.

Frost action and depth to saturated zone are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems help to overcome these limitations.

The depth to saturated zone, depth to dense material, and restricted permeability are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste systems are installed. Installing a drainage system in the area around the absorption field and adding permeable fill material help to overcome seasonal wetness and the restricted permeability.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 6s.

# 67A—Dalton silt loam, 0 to 3 percent slopes

This soil is nearly level, very deep, and somewhat poorly drained. It is on the top of hills in the uplands and on broad flats on till plains. Individual areas are oblong or

irregularly shaped. They commonly range from 10 to 50 acres in size, but some are as large as 100 acres.

The typical sequence, depth, and composition of the layers of this soil are as follows-

Surface laver:

0 to 9 inches, very dark grayish brown silt loam

Subsurface:

9 to 17 inches, light brownish gray friable silt loam, with strong brown and olive brown iron accumulations

Subsoil:

17 to 29 inches, olive brown firm silt loam, with brown iron accumulations and grayish brown iron depletions, and 5 percent gravel

29 to 50 inches, brown firm gravelly silt loam, with yellowish brown iron accumulations and gray iron depletions, and 25 percent gravel

Substratum:

50 to 72 inches, grayish brown firm gravelly loam, with yellowish brown iron accumulations, and 20 percent gravel

Included in mapping are small areas of poorly drained Ashville soils along drainageways and in slight depressions; moderately well drained Canaseraga soils on slight rises and knolls; Fremont soils in areas with no fragipans; and Volusia soils having a silty mantle less than 20 inches thick. Included areas make up about 15 to 25 percent of this unit.

#### Soil properties—

Permeability: Moderate in the surface layer and subsurface layer, slow or very slow in the fragipan and substratum

Available water capacity: Very low to moderate

Soil reaction: Very strongly acid to moderately acid in the surface layer and subsurface layer, strongly acid to moderately acid in the upper fragipan, moderately acid to neutral in the lower fragipan, and slightly acid to neutral in the substratum

Water table: Perched at a depth of .5 to 1.5 feet from November through May Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are used for hay, pasture, or cultivated crops in support of dairy farming. Some of the acreage is woodland or idle land.

This soil is moderately well suited to cultivated crops. Unless a drainage system is installed, planting is delayed in spring and the soil can be used only for short-season annual crops, hay, or pasture. Harvesting crops during prolonged wet periods in fall is difficult. If a drainage system is installed, the soil is suited to most of the crops commonly grown in the county. Wetness can be reduced by closely spaced tile and open-ditch drainage systems. The soil commonly does not have stones on the surface and can be easily cultivated. Crops respond well to sufficient applications of lime and fertilizer. Incorporating crop residue into the soil, growing cover crops, and tilling only when the soil is at the proper moisture content help to maintain tilth and increase the content of organic matter.

This soil is well suited to water-tolerant hay and to late spring pasture. Overgrazing and grazing when the soil is wet are the main concerns in managing pasture. Grazing when the soil is wet causes surface compaction and damages the pasture. Using proper stocking rates, rotating livestock grazing, deferring grazing when the soil is wet, controlling weeds and brush, topdressing with lime and fertilizer, and selecting water-tolerant species for seeding are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion and the hazard of erosion on roads and trails are slight. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand the seasonal wetness grow best.

The depth to saturated zone is the main limitation if this soil is used as a site for dwellings with basements. Installing drains around footings, and sealing foundations and basement walls help to prevent excessive wetness in basements. Installing interceptor drains and diversion ditches in upslope areas diverts surface and subsurface water from the dwellings.

Frost action and depth to saturated zone are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material, and installing roadside drainage systems help to overcome these limitations.

The depth to saturated zone, depth to dense material, and restricted permeability are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system in the area around the absorption field reduces the wetness, and adding permeable fill material helps to overcome the seasonal wetness and the restricted permeability.

Erosion is a hazard if the plant cover is removed during construction. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 3w.

### 67B—Dalton silt loam, 3 to 8 percent slopes

This soil is gently sloping, very deep, and somewhat poorly drained. It is on the top of hills in the uplands and on broad flats on till plains. It receives some runoff from the higher adjacent soils. Individual areas are oblong or irregularly shaped, and commonly range from 10 to 50 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows— Surface layer:

0 to 9 inches, very dark grayish brown silt loam

#### Subsurface:

9 to 17 inches, light brownish gray friable silt loam, with strong brown and olive brown iron accumulations

#### Subsoil:

17 to 29 inches, olive brown firm silt loam, with brown iron accumulations and grayish brown iron depletions, and 5 percent gravel

29 to 50 inches, brown firm gravelly silt loam, with yellowish brown iron accumulations and gray iron depletions, and 25 percent gravel

#### Substratum:

50 to 72 inches, grayish brown firm gravelly loam, with yellowish brown iron accumulations, and 20 percent gravel

Included in mapping are small areas of poorly drained Ashville soils along drainageways and in slight depressions; moderately well drained Canaseraga soils on slight rises and knolls; Fremont soils in areas with no fragipans; and Volusia soils having a silty mantle less than 20 inches thick. Included areas make up about 15 to 25 percent of this unit.

#### Soil properties—

Permeability: Moderate in the surface layer and subsurface layer, slow or very slow in the fragipan and substratum

Available water capacity: Very low to moderate

Soil reaction: Very strongly acid to moderately acid in the surface layer and subsurface layer, strongly acid to moderately acid in the upper fragipan, moderately acid to neutral in the lower fragipan, and slightly acid to neutral in the substratum

Water table: Perched at a depth of .5 to 1.5 feet from November through May Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are used for hay, pasture, or cultivated crops grown in support of dairy farming. Some of the acreage is woodland or idle land.

This soil is moderately well suited to cultivated crops. Undrained areas are better suited to short-season crops, and to hay and pasture. Wetness delays tillage in spring and may make harvesting difficult in fall. If drained and protected from erosion, the soil is suited to most of the crops commonly grown in the county. Interceptor drains can divert runoff from the higher adjacent soils, and tile and open-ditch drainage systems can remove excess water. Tile drains generally should be closely spaced because of the restricted permeability in the subsoil. Erosion can be controlled by stripcropping, farming on the contour, growing cover crops, and minimizing tillage. Incorporating crop residue into the soil and tilling only when the soil is at the proper moisture content improve tilth and help to maintain the content of organic matter. The soil commonly does not have stones on the surface and can be easily cultivated. Crops respond well to recommended applications of lime and fertilizer.

This soil is well suited to water-tolerant hay and to late spring pasture. Overgrazing and grazing when the soil is wet are the main concerns in managing pasture. Grazing when the soil is wet causes surface compaction and damages the pasture. Using proper stocking rates, rotating livestock grazing, deferring grazing when the soil is wet, controlling weeds and brush, topdressing with lime and fertilizer, and selecting water-tolerant species for seeding are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is moderate. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand the seasonal wetness grow best.

The depth to saturated zone is the main limitation if this soil is used as a site for dwellings with basements. Installing drains around footings, and sealing foundations and basement walls help to prevent excessive wetness in basements. Installing interceptor drains and diversion ditches in upslope areas diverts surface and subsurface water from the dwellings.

Frost action and depth to saturated zone are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material, and installing roadside drainage systems help to overcome these limitations.

The depth to saturated zone, depth to dense material, and restricted permeability are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system in the area around the absorption field, and adding permeable fill material help reduce the seasonal wetness and the restricted permeability.

This soil is subject to erosion if plant material is removed during construction. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 3w.

## 68A—Volusia channery silt loam, 0 to 3 percent slopes

This soil is nearly level, very deep, and somewhat poorly drained. It is on flat hilltops that receive little or no runoff and on upland benches that receive runoff from the higher adjacent soils. Individual areas are circular or irregularly shaped, and range from 5 to 75 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 7 inches, very dark grayish brown channery silt loam with 15 percent channers

Subsurface layer:

7 to 16 inches, light brownish gray friable channery loam, with yellowish brown iron accumulations, and 25 percent channers

Subsoil:

16 to 45 inches, brown very firm channery silt loam, with yellowish brown iron accumulations and grayish brown iron depletions, and 30 percent channers

Substratum:

45 to 68 inches, brown firm very channery silt loam, with yellowish brown iron accumulations and light brownish gray iron depletions, and 35 percent channers 68 to 72 inches, grayish brown firm very gravelly loam, with 45 percent gravel

Included in mapping are small areas of the poorly drained Chippewa soils in slight depressions and along drainageways; Busti soils which do not have a fragipan; better drained Mardin soil on higher knolls; and Fremont soils which do not have a fragipan and have more clay in the subsoil than the Volusia soil. Also included are small areas of Orpark soils which are less than 40 inches deep over bedrock, and small areas of Volusia soils that do not have a channery surface layer. Included areas make up about 15 to 25 percent of this unit.

#### Soil properties—

Permeability: Moderate in the surface and subsurface layer and slow or very slow in the fragipan layer and substratum

Available water capacity: Very low to low

Soil reaction: Very strongly acid to moderately acid in the surface layer, very strongly acid to slightly acid in the subsurface and upper subsoil, strongly acid to slightly acid in the fragipan, and from strongly acid to slightly alkaline in the substratum

Water table: Perched at a depth of .5 to 1.5 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most of the acreage is woodland, or is idle land that is reverting to woodland. Some areas are used for small grain, corn, or hay grown in support of dairy farming. These areas generally are farmed at a low level of intensity.

This soil is moderately well suited to cultivated crops. Unless a drainage system is installed, planting is delayed in spring and the soil can be used only for short-season annual crops, hay, or pasture. Harvesting crops during prolonged wet periods in fall is more difficult on this nearly level soil than on the more sloping Volusia soils. If a drainage system is installed, the soil is suited to the crops commonly grown in the county. The wetness can be reduced by closely spaced tile and open-ditch drainage systems. Maintaining good tilth is a management concern in intensively cultivated areas. Minimizing tillage, incorporating crop residue into the soil, growing cover crops, and tilling only when the soil is at the proper moisture content, help to maintain tilth and the content of organic matter. Crops respond well to recommended applications of lime and fertilizer.

This soil is well suited to water-tolerant hay and to late-spring pasture. Overgrazing and grazing when the soil is wet are the major concerns in managing pasture. Grazing when the soil is wet causes surface compaction, restricts plant growth, and can deplete the stand of pasture grasses and thus result in serious erosion. Using proper stocking rates, rotating livestock grazing, deferring grazing when the soil is wet, controlling weeds and brush, and selecting water-tolerant species for seeding are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion and the hazard of erosion on roads and trails are slight. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand the seasonal wetness grow best.

The depth to saturated zone is the main limitation if this soil is used as a site for dwellings with basements. Installing drains around footings and sealing foundations and basement walls help to prevent excessive wetness in basements. Installing interceptor drains and diversion ditches in upslope areas diverts surface and subsurface water from the dwellings.

Frost action and depth to saturated zone are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material, and installing roadside drainage systems help to overcome these limitations.

The depth to saturated zone, depth to dense material, and restricted permeability are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system in the area around the absorption field reduces the wetness, and adding permeable fill material helps to overcome the seasonal wetness and the restricted permeability.

Erosion is a hazard if the plant cover is removed during construction. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 3w.

# 68B-Volusia channery silt loam, 3 to 8 percent slopes

This soil is gently sloping, very deep, and somewhat poorly drained. It is on hilltops, side slopes and concave toeslopes on uplands that receive runoff from the higher adjacent soils. Individual areas are oblong or irregularly shaped, and range from 5 to 75 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 7 inches, very dark grayish brown channery silt loam with 15 percent channers

Subsurface layer:

7 to 16 inches, light brownish gray friable channery loam, with yellowish brown iron accumulations, and 25 percent channers

Subsoil:

16 to 45 inches, brown very firm channery silt loam, with yellowish brown iron accumulations and grayish brown iron depletions, and 30 percent channers

Substratum:

45 to 68 inches, brown firm very channery silt loam, with yellowish brown iron accumulations and light brownish gray iron depletions, and 35 percent channers 68 to 72 inches, grayish brown firm very gravelly loam, with 45 percent gravel

Included in mapping are small areas of the poorly drained Chippewa soils in slight depressions and along drainageways; better drained Mardin soils on higher knolls;

Busti soils which do not have a fragipan; and Fremont soils which do not have a fragipan, and have more clay in the subsoil than the Volusia soil. Also included are small areas of Orpark soils, which are less than 40 inches deep over bedrock, and small areas of Volusia soils that do not have a channery surface layer. Included areas make up about 15 to 25 percent of this unit.

#### Soil properties—

Permeability: Moderate in the surface and subsurface layer and slow or very slow in the fragipan layer and substratum

Available water capacity: Very low or low

Soil reaction: Very strongly acid to moderately acid in the surface layer, very strongly acid to slightly acid in the subsurface and upper subsoil, strongly acid to slightly acid in the fragipan, and from strongly acid to slightly alkaline in the substratum

Water table: Perched at a depth of .5 to 1.5 feet from November through May Flooding hazard: None

Depth to bedrock: More than 6 feet

Most of the acreage is woodland, or is idle land that is reverting to woodland. Some areas are used for small grain, corn, or hay grown in support of dairy farming. These areas generally are farmed at a low level of intensity.

This soil is moderately well suited to cultivated crops. Unless a drainage system is installed, planting is delayed in spring, and the soil can be used only for short-season annual crops, hay, or pasture. Harvesting crops during prolonged wet periods in fall is difficult. If drained and protected from erosion, the soil is suited to the crops commonly grown in the county. Interceptor drains can divert runoff from the higher adjacent soils, and tile and open-ditch drainage systems can remove excess water. Tile drains generally should be closely spaced because of the restricted permeability in the subsoil. Erosion can be controlled by stripcropping, farming on the contour, growing cover crops, and minimizing tillage. Incorporating crop residue into the soil and tilling only when the soil is at the proper moisture content improve tilth and help to maintain the content of organic matter. Crops respond well to recommended applications of lime and fertilizer.

This soil is well suited to water-tolerant hay and to late-spring pasture. Overgrazing and grazing when the soil is wet are the major concerns in managing pasture. Grazing when the soil is wet causes surface compaction, restricts plant growth, and can deplete the stand of pasture grasses, and thus result in serious erosion. Using proper stocking rates, rotating livestock grazing, deferring grazing when the soil is wet, controlling weeds and brush, and selecting water-tolerant species for seeding are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is moderate. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand the seasonal wetness grow best.

The depth to saturated zone is the main limitation if this soil is used as a site for dwellings with basements. Installing drains around footings and sealing foundations and basement walls help to prevent excessive wetness in basements. Installing interceptor drains and diversion ditches in upslope areas diverts surface and subsurface water from the dwellings.

Frost action and depth to saturated zone are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material, and installing roadside drainage systems help to overcome these limitations.

The depth to saturated zone, depth to dense material, and restricted permeability are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems

are installed. Installing a drainage system in the area around the absorption field and adding permeable fill material help to overcome the seasonal wetness and the restricted permeability.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 3w.

## 68C—Volusia channery silt loam, 8 to 15 percent slopes

This soil is strongly sloping, very deep, and somewhat poorly drained. It is on hillsides, valley sides and the side slopes of dissected drainageways. It receives runoff from the higher adjacent soils. Individual areas are oblong or rectangular, and range from 10 to 50 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 7 inches, very dark grayish brown channery silt loam with 15 percent channers

#### Subsurface layer:

7 to 16 inches, light brownish gray friable channery loam, with yellowish brown iron accumulations, and 25 percent channers

#### Subsoil:

16 to 45 inches, brown very firm channery silt loam, with yellowish brown iron accumulations and grayish brown iron depletions, and 30 percent channers

#### Substratum:

45 to 68 inches, brown firm very channery silt loam, with yellowish brown iron accumulations and light brownish gray iron depletions, and 35 percent channers68 to 72 inches, grayish brown firm very gravelly loam, with 45 percent gravel

Included in mapping are small areas of the poorly drained Chippewa soils in slight depressions and along drainageways; Busti soils which do not have a fragipan; moderately well drained Mardin soil; and Fremont soils which do not have a fragipan and have more clay in the subsoil than the Volusia soil. Also included are small areas of Orpark soils which are less than 40 inches deep over bedrock, and small areas of Volusia soils that do not have a channery surface layer. Included areas make up about 15 to 25 percent of this unit.

#### Soil properties—

Permeability: Moderate in the surface and subsurface layer, and slow or very slow in the fragipan layer and substratum

Available water capacity: Very low to low

Soil reaction: Very strongly acid to moderately acid in the surface layer, very strongly acid to slightly acid in the subsurface and upper subsoil, strongly acid to slightly acid in the fragipan, and from strongly acid to slightly alkaline in the substratum

*Water table:* Perched at a depth of .5 to 1.5 feet from November through May *Flooding hazard:* None

Depth to bedrock: More than 6 feet

Most areas are used for hay and pasture. Some acreage is woodland, or is idle land that is reverting to woodland. A few areas are used for small grain, corn, or hay grown in support of dairy farming.

This soil is moderately well suited to cultivated crops. Unless a drainage system is installed, planting is delayed in spring, and the soil can be used only for short-season annual crops, hay, or pasture. Harvesting crops during prolonged wet periods in fall is

difficult. If drained and protected from erosion, the soil is suited to the crops commonly grown in the county. Interceptor drains can divert runoff from the higher adjacent soils, and tile and open-ditch drainage systems can remove excess water. Tile drains generally should be closely spaced because of the restricted permeability in the subsoil. Erosion can be controlled by stripcropping, farming on the contour, growing cover crops, and minimizing tillage. Incorporating crop residue into the soil and tilling only when the soil is at the proper moisture content improve tilth and help to maintain the content of organic matter. Crops respond well to recommended applications of lime and fertilizer.

This soil is well suited to water-tolerant hay and to late-spring pasture. Overgrazing and grazing when the soil is wet are the major concerns in managing pasture. Grazing when the soil is wet causes surface compaction, restricts plant growth, and can deplete the stand of pasture grasses and thus result in serious erosion. Using proper stocking rates, rotating livestock grazing, deferring grazing when the soil is wet, controlling weeds and brush, and selecting water-tolerant species for seeding are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand the seasonal wetness grow best.

The depth to saturated zone and the slope are the main limitations on sites for dwellings with basements. Installing drains around footings and sealing foundations and basement walls help to prevent excessive wetness in basements. Installing interceptor drains and diversion ditches in upslope areas diverts surface and subsurface water from the dwellings. Land grading and shaping will help to overcome the slope.

Frost action, slope, and depth to saturated zone are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems help to overcome these limitations. Land grading and building on the contour help to overcome the slope limitation.

The depth to saturated zone, depth to dense material, and restricted permeability are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system in the area around the absorption fields reduces the seasonal wetness, and adding permeable fill material helps to overcome the seasonal wetness and the restricted permeability.

Erosion is a serious hazard if the plant cover is removed during construction. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 3e.

# 69A—Erie channery silt loam, 0 to 3 percent slopes

This soil is nearly level, very deep, and somewhat poorly drained. It is on broad flats on hilltops and till plains. Some areas receive runoff from the higher adjacent soils. Individual areas are oblong or circular, and commonly are from 10 to 50 acres in size, but range from 5 to 60 acres.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 9 inches, very dark grayish brown channery silt loam with 15 percent channers

Subsurface layer:

9 to 14 inches, light brownish gray friable silt loam, with yellowish brown and brown iron accumulations, and 10 percent channers

#### Subsoil:

14 to 28 inches, brown firm channery silt loam, with strong brown iron accumulations and light brownish gray iron depletions, and 15 percent channers

28 to 45 inches, dark grayish brown firm channery silt loam, with yellowish brown iron accumulations, and 20 percent channers

#### Substratum:

45 to 72 inches, grayish brown firm channery silt loam, with yellowish brown iron accumulations, and 25 percent channers

Included in mapping are small areas of the poorly drained Ashville soils in slight depressions and along drainageways; Darien soils which do not have a fragipan; and Fremont soils which do not have a fragipan, and have a higher content of clay in the subsoil than the Erie soil. Also included are areas of the moderately well drained Langford soils on slight rises and knolls. Included areas make up about 15 to 25 percent of this unit.

### Soil properties—

Permeability: Moderate in the surface and subsurface layer, slow in the fragipan and substratum

Available water capacity: Very low to low

Soil reaction: Strongly acid to slightly acid in the surface and subsurface, moderately acid to slightly

alkaline in the fragipan, and slightly acid to moderately alkaline in the substratum *Water table:* Perched at a depth of .5 to 1.5 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are used for cultivated crops, hay, or pasture. Some of the acreage is woodland, or is idle land that is reverting to woodland.

This soil is moderately well suited to cultivated crops. Unless a drainage system is installed, planting is delayed in spring, and the soil can be used only for short-season annual crops, hay or pasture. Harvesting crops during prolonged wet periods in fall is more difficult on this soil than on the more sloping Erie soils. If a drainage system is installed, the soil is suited to the crops commonly grown in the county. Wetness can be reduced by installing closely spaced tile and open-ditch drainage systems. Maintaining good tilth is a management concern in some intensively cultivated areas. Incorporating crop residue into the soil, growing cover crops, and tilling only when the soil is at the proper moisture content help to maintain tilth and the content of organic matter.

This soil is well suited to water-tolerant hay and to late-spring pasture. Overgrazing and grazing when the soil is wet are the main concerns in managing pasture. Grazing when the soil is wet causes surface compaction and damages the pasture. Using proper stocking rates, rotating livestock grazing, deferring grazing when the soil is wet, controlling weeds and brush, and selecting water-tolerant species for seeding are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion and the hazard of erosion on roads and trails are slight. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand seasonal wetness grow best.

The depth to saturated zone is the main limitations if this soil is used as a site for dwellings with basements. Installing drains around footings and sealing foundations and basement walls help to prevent excessive wetness in basements. Installing interceptor drains and diversion ditches in upslope areas diverts surface and subsurface water from the dwellings.

Frost action and depth to saturated zone are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems help to overcome these limitations.

The depth to saturated zone, depth to dense material, and restricted permeability are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system in the area around the absorption fields reduces the seasonal wetness, and adding permeable fill material helps to overcome the seasonal wetness and the restricted permeability.

The capability subclass is 3w.

## 69B—Erie channery silt loam, 3 to 8 percent slopes

This soil is gently sloping, very deep, and somewhat poorly drained. It is in areas on broad hilltops, concave toe slopes, and low till plains that receives runoff from the higher adjacent soils. Individual areas are oblong or circular, and range from 5 to 40 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 9 inches, very dark grayish brown channery silt loam with 15 percent channers

Subsurface layer:

9 to 14 inches, light brownish gray friable silt loam, with yellowish brown and brown iron accumulations, and 10 percent channers

Subsoil:

14 to 28 inches, brown firm channery silt loam, with strong brown iron accumulations and light brownish gray iron depletions, and 15 percent channers

28 to 45 inches, dark grayish brown firm channery silt loam, with yellowish brown iron accumulations, and 20 percent channers

Substratum:

45 to 72 inches, grayish brown firm channery silt loam, with yellowish brown iron accumulations, and 25 percent channers

Included in mapping are small areas of the poorly drained Ashville soils in slight depressions and along drainageways; Darien soils which do not have a fragipan; and Fremont soils which do not have a fragipan, and have a higher content of clay in the subsoil than the Erie soil. Also included are areas of the moderately well drained Langford soils on slight rises and knolls. Included areas make up about 15 to 25 percent of this unit.

#### Soil properties—

Permeability: Moderate in the surface and subsurface layer, slow in the fragipan and substratum

Available water capacity: Very low or low

Soil reaction: Strongly acid to slightly acid in the surface and subsurface, moderately acid to slightly alkaline in the fragipan, and slightly acid to moderately alkaline in the substratum

Water table: Perched at a depth of .5 to 1.5 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are used for cultivated crops, hay, or pasture. Some of the acreage is woodland, or is idle land that is reverting to woodland.

This soil is moderately well suited to cultivated crops. Unless a drainage system is installed, planting is delayed in spring, and the soil can be used only for short-season annual crops, hay or pasture. Harvesting crops during prolonged wet periods in fall is difficult. If drained and protected from erosion, the soil is suited to the crops commonly grown in the county. Interceptor drains can divert runoff from the higher adjacent soils, and tile and open-ditch drainage systems can remove excess water. Tile drains generally should be closely spaced because of the restricted permeability in the fragipan. Erosion can be controlled by stripcropping, farming on the contour, growing cover crops, and minimizing tillage. Incorporating crop residue into the soil and tilling only when the soil is at the proper moisture content improve tilth and help to maintain the content of organic matter.

This soil is well suited to water-tolerant hay and to late-spring pasture. Overgrazing and grazing when the soil is wet are the main concerns in managing pasture. Grazing when the soil is wet causes compaction, restricts plant growth, and can deplete the stand of pasture grasses, and thus result in serious erosion. Using proper stocking rates, rotating livestock grazing, deferring grazing when the soil is wet, controlling weeds and brush, and selecting water-tolerant species for seeding are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is moderate. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand seasonal wetness grow best.

The depth to saturated zone is the main limitation if this soil is used as a site for dwellings with basements. Installing drains around footings, and sealing foundations and basement walls help to prevent excessive wetness in basements. Installing interceptor drains and diversion ditches in upslope areas diverts surface and subsurface water from the dwellings.

Frost action and depth to saturated zone are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material, and installing roadside drainage systems help to overcome these limitations.

The depth to saturated zone, depth to dense material, and restricted permeability are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system in the area around the absorption field reduces the seasonal wetness, and adding permeable fill material helps to overcome the seasonal wetness and the restricted permeability.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 3w.

# 69C—Erie channery silt loam, 8 to 15 percent slopes

This soil is strongly sloping, very deep, and somewhat poorly drained. It is on hillsides, valley sides, and the side slopes of dissecting drainageways. It receives some runoff from the higher adjacent soils. Individual areas are oblong or rectangular in shape, and range from 10 to 50 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 9 inches, very dark grayish brown channery silt loam with 15 percent channers

Subsurface layer:

9 to 14 inches, light brownish gray friable silt loam, with yellowish brown and brown iron accumulations, and 10 percent channers

#### Subsoil:

14 to 28 inches, brown firm channery silt loam, with strong brown iron accumulations and light brownish gray iron depletions, and 15 percent channers

28 to 45 inches, dark grayish brown firm channery silt loam, with yellowish brown iron accumulations, and 20 percent channers

#### Substratum:

45 to 72 inches, grayish brown firm channery silt loam, with yellowish brown iron accumulations, and 25 percent channers

Included in mapping are small areas of the poorly drained Ashville soils in slight depressions and along drainageways; Darien soils which do not have a fragipan; and Fremont soils which do not have a fragipan, and have a higher content of clay in the subsoil than the Erie soil. Also included are areas of the moderately well drained Langford soils on slight rises and knolls. Included areas make up about 15 to 25 percent of this unit.

### Soil properties—

Permeability: Moderate in the surface and subsurface layer, slow in the fragipan and substratum

Available water capacity: Very low or low

Soil reaction: Strongly acid to slightly acid in the surface and subsurface, moderately acid to slightly alkaline in the fragipan, and slightly acid to moderately

alkaline in the substratum

Water table: Perched at a depth of .5 to 1.5 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are used for cultivated crops, hay, or pasture. Some of the acreage is woodland, or is idle land that is reverting to woodland.

This soil is moderately well suited to cultivated crops. If drained and protected from erosion, this soil can be used for most of the crops commonly grown in the county. Unless a drainage system is installed, planting is delayed in spring, and the soil can be used only for short-season annual crops, hay or pasture. Harvesting crops during prolonged wet periods in fall is difficult. If drained and protected from erosion, the soil is suited to the crops commonly grown in the county. Interceptor drains can divert runoff from the higher adjacent soils, and tile and open-ditch drainage systems can remove excess water. Tile drains generally should be closely spaced because of the restricted permeability in the fragipan. Erosion can be controlled by stripcropping, farming on the contour, growing cover crops, and minimizing tillage. Incorporating crop residue into the soil, and tilling only when the soil is at the proper moisture content improve tilth and help to maintain the content of organic matter.

This soil is well suited to water-tolerant hay and to late-spring pasture. Overgrazing and grazing when the soil is wet are the main concerns in managing pasture. Grazing when the soil is wet causes compaction, restricts plant growth, and can deplete the stand of pasture grasses, and thus result in serious erosion. Using proper stocking rates, rotating livestock grazing, deferring grazing when the soil is wet, controlling weeds and brush, and selecting water-tolerant species for seeding are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand seasonal wetness grow best. Building logging roads and skid trails on the contour helps control erosion and minimizes gullying along the trails.

The depth to saturated zone and the slope are the main limitations if this soil is used as a site for dwellings with basements. Installing drains around footings, and sealing foundations and basement walls help to prevent excessive wetness in basements. Installing interceptor drains and diversion ditches in upslope areas diverts surface and subsurface water from the dwellings. Land grading and shaping will help to overcome the slope.

Frost action, slope and depth to saturated zone are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material, and installing roadside drainage systems help to overcome these limitations. Land grading and building on the contour help to overcome the slope limitation.

The depth to saturated zone, depth to dense material, and restricted permeability are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system in the area around the absorption field reduces the seasonal wetness, and adding permeable fill material helps to overcome the seasonal wetness and the restricted permeability.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 3e.

# 71E—Mongaup channery silt loam, 25 to 35 percent slopes, very stony

This soil is steep, moderately deep, and well drained. It is on uniformly sloping valley sides that receive runoff from higher adjacent soils. It is in areas where the topography is influenced by the underlying bedrock. Sandstone and siltstone bedrock is at a depth of 20 to 40 inches. Large stones cover 0.1 to 3 percent of the soil surface. It occurs at elevations above 1800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are oblong or rectangular, and range from 15 to 75 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 4 inches, very dark grayish brown channery silt loam with 20 percent channers

#### Subsoil:

4 to 8 inches, strong brown very friable channery silt loam, with 15 percent channers 8 to 16 inches, yellowish brown friable channery silt loam, with 20 percent channers 16 to 27 inches, brown friable channery silt loam, with 25 percent channers

#### Substratum:

27 inches, hard grayish sandstone and siltstone bedrock

Included in mapping are small areas of moderately well drained Ischua soils; well drained Franklinville soils where the bedrock is deeper below the surface; and Mongaup soils that lack the very stony surface layer, or that are extremely stony on the surface. Also included are areas where the bedrock is within 20 inches of the surface. Included areas make up about 10 to 20 percent of this unit.

#### Soil properties—

Permeability: Moderate throughout the profile Available water capacity: Very low to moderate

Soil reaction: Extremely acid to strongly acid in the surface layer and upper part of the subsoil, and extremely acid to moderately acid in the lower part of the subsoil and substratum

Water table: At a depth of more than 6 feet

Flooding hazard: None

Depth to bedrock: 20 to 40 inches

Most areas are wooded and provide wildlife habitat. Some areas are idle, or are used as pasture.

This soil is not suited to cultivated crops or hay because of the surface stones, slope and the very severe hazard of erosion. The stones make tillage and harvesting operations impossible or impractical. A plant cover that controls runoff and erosion is essential.

The suitability of this soil for pasture is limited due to the excessive number and size of stones on the surface. A good plant cover is needed. Prevention of overgrazing helps to protect the soil from erosion and gullying. Reseeding pastures is difficult because of the slope and surface stones. Sufficient applications of lime and fertilizer are needed to improve native pastures.

The potential productivity of this soil for northern red oak is moderately high. The hazard of off-road or off-trail erosion is moderate and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building skid trails and roads across the slope minimizes gullying along the trails and roads.

The slope and the depth to hard bedrock are the main limitations if this soil is used as a site for dwellings with basements. Extensive land shaping may be necessary to overcome the slope. Hard bedrock can make excavation difficult and costly. Blasting may be necessary.

The slope, frost action, and depth to hard bedrock are the main limitations if this soil is used as a site for local roads and streets. Careful planning and design of roads and streets along the contour, along with land grading, can help to overcome the limitation imposed by slope. Adding coarse textured subgrade or base material and installing roadside drainage systems help to overcome the frost action. Hard bedrock can make excavation difficult and costly. Blasting may be necessary.

Depth to bedrock and slope are limitations if this soil is used as a site for septic tank absorption fields. Hard bedrock can make excavation difficult and costly. Care is needed to prevent the contamination of ground water resulting from seepage through the jointed and fractured bedrock. Extensive engineering, design modifications and land shaping are necessary to overcome the limitations imposed by slope.

Erosion is a serious hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 7s.

# 71F—Mongaup channery silt loam, 35 to 70 percent slopes, very stony

This soil is very steep, moderately deep, and well drained. It is on uniformly sloping valley sides that receive runoff from higher adjacent soils. It is in areas where the topography is influenced by the underlying bedrock. Sandstone and siltstone bedrock is at a depth of 20 to 40 inches. Large stones cover 0.1 to 3 percent of the soil surface. It occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are oblong or rectangular, and range from 15 to 75 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 4 inches, very dark grayish brown channery silt loam with 20 percent channers

#### Subsoil:

4 to 8 inches, strong brown very friable channery silt loam, with 15 percent channers 8 to 16 inches, yellowish brown friable channery silt loam, with 20 percent channers 16 to 27 inches, brown friable channery silt loam, with 25 percent channers

#### Substratum:

27 inches, hard grayish sandstone and siltstone bedrock

Included in mapping are small areas of moderately well drained Ischua soils; well drained Franklinville soils where the bedrock is deeper below the surface; and Mongaup soils that lack the very stony surface layer, or soils that have an extremely stony surface layer. Also included are areas where the bedrock is within 20 inches of the surface. Included areas make up about 10 to 20 percent of this unit.

#### Soil properties—

Permeability: Moderate throughout the profile Available water capacity: Very low to moderate

Soil reaction: Extremely acid to strongly acid in the surface layer and upper part of the subsoil, and extremely acid to moderately acid in the lower part of the subsoil and substratum

Water table: At a depth of more than 6 feet

Flooding hazard: None

Depth to bedrock: 20 to 40 inches

Most areas are wooded and provide wildlife habitat.

This soil is not suited to cultivated crops, hay or pasture. The slope, surface stones and the very severe hazard of erosion are the main management concerns. The soil is too steep for the safe operation of farm machinery. A plant cover that controls runoff and erosion is essential.

The potential productivity of this soil for northern red oak is moderately high. The hazard of off-road or off-trail erosion is severe and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building logging roads and skid trails across the slope helps to control erosion and minimizes gullying along the trails and roads.

Construction is extremely difficult or impractical on this soil. The slope and the depth to bedrock are the main limitations if this soil is used as a site for dwellings with basements, local roads and streets, and septic tank absorption fields. Extensive engineering, design modifications and land shaping are necessary to overcome the limitations imposed by slope and depth to bedrock.

Erosion is a very serious hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible. In most areas the native plant cover should not be removed.

The capability subclass is 7s.

# 72B—Towerville silt loam, 3 to 8 percent slopes

This soil is gently sloping, moderately deep, and moderately well drained. It is on convex hilltops and side slopes in areas where the topography is influenced by the underlying bedrock. Siltstone, shale or sandstone bedrock is at a depth of 20 to 40 inches. Individual areas are long and narrow, and range from 10 to 30 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 7 inches, dark grayish brown silt loam with 10 percent channers

#### Subsoil:

7 to 15 inches, yellowish brown friable silt loam, with 5 percent channers
15 to 23 inches, light yellowish brown friable silt loam, with yellowish brown iron accumulations and gray iron depletions, and 10 percent channers
23 to 32 inches, brown firm channery silty clay loam, with yellowish brown iron accumulations and dark grayish brown iron depletions, and 20 percent channers

#### Substratum:

32 inches, interbedded sandstone and shale bedrock

Included in mapping are small areas of the somewhat poorly drained Orpark soils along drainageways and in slight depressions, and small areas of Hornell soils, which have more clay in the subsoil than the Towerville soil. Also included are small areas of Schuyler soils which are very deep over bedrock, small areas of soils that have a channery surface layer, and small areas that are less than 20 inches deep to bedrock. Included areas make up about 15 to 25 percent of the unit.

#### Soil properties—

Permeability: Moderate in the surface layer and in the upper part of subsoil, slow or moderately slow in the lower part of the subsoil

Available water capacity: Low to high

Soil reaction: Very strongly acid to moderately acid throughout the soil Water table: At a depth of 1.5 to 2.0 feet from December through April

Flooding hazard: None

Depth to bedrock: 20 to 40 inches

Most of the acreage is woodland or is idle land that is reverting to brush. Some areas are used for row crops grown in support of dairy farming. This soil meets the requirements for prime farmland.

This soil is well suited to most of the crops commonly grown in the county. Tillage is delayed by wetness in spring. Draining the wetter included soils allows for earlier planting and more uniform management of the fields. Installing subsurface drainage systems is difficult because of the moderate depth to bedrock. Sufficient applications of lime are needed for most crops, especially legumes. Crops respond well to recommended applications of fertilizer. Erosion is a hazard on long slopes in intensively cultivated areas. Minimizing tillage, farming on the contour, stripcropping, growing cover crops, and establishing diversions that break up long slopes help to control runoff and erosion. Growing cover crops, incorporating crop residue into the soil, and tilling only when the soil is at the proper moisture content help to maintain tilth and increase the content of organic matter.

The soil is well suited to pasture. Overgrazing and grazing when the soil is wet are the main concerns in managing pasture. The soil becomes compacted if it is grazed when wet. Overgrazing and surface compaction restrict plant growth and can damage pasture plants and increase the runoff rate. Applying a sufficient amount of lime and fertilizer, using proper stocking rates, rotating livestock grazing, and controlling weeds and brush are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is moderate. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival.

The depth to saturated zone and the depth to bedrock are the main limitations if this soil is used as a site for dwellings with basements. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary. Where outlets are available, installing drains around footings, and sealing foundations and basement walls help to prevent excessive wetness in basements.

Frost action, depth to saturated zone and depth to bedrock are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems help to overcome these limitations. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary.

The depth to saturated zone and the depth to bedrock are limitations if this soil is used as a site for septic tank absorption fields. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary. Care is needed to prevent the contamination of ground water resulting from seepage through the jointed and fractured bedrock. The absorption field should be installed in suitable fill material. Installing a drainage system in the area around the absorption field helps to overcome the seasonal wetness.

Erosion is a serious hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible. The capability subclass is 2e.

# 72C—Towerville silt loam, 8 to 15 percent slopes

This soil is strongly sloping, moderately deep, and moderately well drained. It is on hilltops and side slopes in areas where the topography is influenced by the underlying bedrock. Siltstone, shale or sandstone bedrock is at a depth of 20 to 40 inches. Individual areas are long and narrow, and range from 10 to 50 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 7 inches, dark grayish brown silt loam with 10 percent channers

Subsoil:

7 to 15 inches, yellowish brown friable silt loam, with 5 percent channers
15 to 23 inches, light yellowish brown friable silt loam, with yellowish brown iron accumulations and gray iron depletions, and 10 percent channers

23 to 32 inches, brown firm channery silty clay loam, with yellowish brown iron accumulations and dark grayish brown iron depletions, and 20 percent channers

Substratum:

32 inches, interbedded sandstone and shale bedrock

Included in mapping are small areas of the somewhat poorly drained Orpark soils along drainageways and in slight depressions, and small areas of Hornell soils which have more clay in the subsoil than the Towerville soil. Also included are small areas of Schuyler soils which are very deep over bedrock, small areas of soils that have a channery surface layer, and small areas than are less than 20 inches deep to bedrock. Included areas make up about 15 to 25 percent of the unit.

# Soil properties—

Permeability: Moderate in the surface layer and in the upper part of subsoil, slow or moderately slow in the lower part of the subsoil

Available water capacity: Low to high

Soil reaction: Very strongly acid to moderately acid throughout the soil *Water table:* At a depth of 1.5 to 2.0 feet from Decemberthrough April

Flooding hazard: None

Depth to bedrock: 20 to 40 inches

Most of the acreage is woodland or is idle land that is reverting to brush. Some areas are used for row crops grown in support of dairy farming.

This soil is moderately well suited to most of the crops commonly grown in the county. Tillage is delayed by wetness in spring. Draining the wetter included soils allows for earlier planting and more uniform management of the fields. Installing subsurface drainage systems is difficult because of the moderate depth to bedrock. Sufficient applications of lime are needed for most crops, especially legumes. Crops respond well to recommended applications of fertilizer. Erosion is a hazard on long slopes in intensively cultivated areas. Minimizing tillage, farming on the contour, stripcropping, growing cover crops, and establishing diversions that break up long slopes help to control runoff and erosion. Growing cover crops, incorporating crop residue into the soil, and tilling only when the soil is at the proper moisture content help to maintain tilth and increase the content of organic matter.

The soil is well suited to pasture. Overgrazing and grazing when the soil is wet are the main concerns in managing pasture. The soil becomes compacted if it is grazed when wet. Overgrazing and surface compaction can restrict plant growth, damage pasture plants, and increase the runoff rate. Applying the proper kinds and amounts of lime and fertilizer, using stocking rates, rotating livestock grazing, and controlling weeds and brush are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building logging roads and skid trails on the contour helps control erosion and minimizes gullying along the trails.

The depth to saturated zone, depth to bedrock and slope are the main limitations if this soil is used as a site for dwellings with basements. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary. Where outlets are available, installing drains around footings, and sealing foundations and basement walls help to prevent excessive wetness in basements. Land grading and building on the contour help to overcome the slope limitation.

Frost action, slope, depth to saturated zone, and depth to bedrock are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems help to overcome the frost action and wetness. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary. Land grading and building on the contour help to overcome the slope limitation.

The depth to saturated zone and the depth to bedrock are limitations if this soil is used as a site for septic tank absorption fields. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary. Care is needed to prevent the contamination of ground water resulting from seepage through the jointed and fractured bedrock. The absorption field should be installed in suitable fill material. Installing a drainage system in the area around the absorption field helps to overcome the seasonal wetness.

Erosion is a serious hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible. The capability subclass is 3e.

# 72D—Towerville silt loam, 15 to 25 percent slopes

This soil is moderately steep, moderately deep, and moderately well drained. It is on valley sides that commonly are dissected by V-shaped gullies. It is in areas where

the topography is influenced by the underlying bedrock. Siltstone, shale and sandstone bedrock is at a depth of 20 to 40 inches. The soil receives runoff from the higher adjacent soils. Individual areas are long and narrow, and range from 10 to 50 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 7 inches, dark grayish brown silt loam with 10 percent channers

#### Subsoil:

7 to 15 inches, yellowish brown friable silt loam, with 5 percent channers
15 to 23 inches, light yellowish brown friable silt loam, with yellowish brown iron accumulations and gray iron depletions, and 10 percent channers
23 to 32 inches, brown firm channery silty clay loam, with yellowish brown iron accumulations and dark grayish brown iron depletions, and 20 percent channers

#### Substratum:

32 inches, interbedded sandstone and shale bedrock

Included in mapping are small areas of the somewhat poorly drained Orpark soils along drainageways and in slight depressions, and small areas of Hornell soils which have more clay in the subsoil than the Towerville soil. Also included are small areas of Schuyler soils which are very deep over bedrock, small areas of soils that have a channery surface layer, and small areas that are less than 20 inches deep to bedrock. Included areas make up about 15 to 25 percent of the unit.

#### Soil properties—

Permeability: Moderate in the surface layer and in the upper part of subsoil, slow or moderately slow in the lower part of the subsoil

Available water capacity: Low to high

Soil reaction: Very strongly acid to moderately acid throughout the soil *Water table:* At a depth of 1.5 to 2.0 feet from December through April

Flooding hazard: None

Depth to bedrock: 20 to 40 inches

Most of the acreage is woodland, or is idle land that is reverting to brush. Some areas are used for hay or pasture. A few areas are used for row crops.

This soil is poorly suited to cultivated crops because of the slope and the severe hazard of erosion. The slope limits the use of farm equipment. Tillage is slightly delayed by wetness in spring. Cultivated crops should be grown only occasionally, and the maximum number of conservation practices should be used. Growing cover crops, minimizing tillage, and establishing diversions that break up long slopes and divert excess runoff help to control erosion. Where the slope permits, farming on the contour and stripcropping are suitable. Because tilling the soil is difficult and erosion is a hazard, long-term sod crops are more practical than most other crops. Applying sufficient amounts of lime and fertilizer is needed to maintain good crop growth.

The soil is better suited to hay and pasture than to cultivated crops. Overgrazing and grazing when the soil is wet restrict plant growth and can damage pasture plants. Erosion is a hazard in overgrazed areas. Using proper stocking rates, rotating livestock grazing and controlling weeds and brush are the main management concerns. Because the soil is naturally acid, applications of lime and fertilizer are needed to improve the growth of most pasture plants.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion is moderate and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring,

when the soil is moist, helps to ensure their survival. Building skid trails and roads across the slope minimizes gullying along the trails and roads.

The depth to saturated zone, slope, and the depth to bedrock are the main limitations if this soil is used as a site for dwellings with basements. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary. Where outlets are available, installing drains around footings, and sealing foundations and basement walls help to prevent excessive wetness in basements. Land grading and building on the contour help to overcome the slope limitation.

Slope, frost action, depth to saturated zone, and depth to bedrock are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems help to overcome the frost action and wetness. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary. Land grading and building on the contour help to overcome the slope limitation.

The slope, depth to saturated zone, and the depth to bedrock are limitations if this soil is used as a site for septic tank absorption fields. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary. Care is needed to prevent the contamination of ground water resulting from seepage through the jointed and fractured bedrock. The absorption field should be installed in suitable fill material. Installing a drainage system in the area around the absorption field helps to overcome the seasonal wetness.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 4e.

# 72E—Towerville silt loam, 25 to 35 percent slopes

This soil is steep, moderately deep, and moderately well drained. It is on valley sides that commonly are dissected by V-shaped gullies. It is in areas where the topography is influenced by the underlying bedrock. Siltstone bedrock is at a depth of 20 to 40 inches. The soil receives runoff from the higher adjacent soils. Individual areas are long and narrow and range from 10 to 75 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 7 inches, dark grayish brown silt loam with 10 percent channers

#### Subsoil:

7 to 15 inches, yellowish brown friable silt loam, with 5 percent channers
15 to 23 inches, light yellowish brown friable silt loam, with yellowish brown iron
accumulations and gray iron depletions, and 10 percent channers
23 to 32 inches, brown firm channery silty clay loam, with yellowish brown iron

23 to 32 inches, brown firm channery silty clay loam, with yellowish brown iron accumulations and dark grayish brown iron depletions, and 20 percent channers

#### Substratum:

32 inches, interbedded sandstone and shale bedrock

Included in mapping are small areas of the somewhat poorly drained Orpark soils along drainageways and in seepage spots, and small areas of Hornell soils which have more clay in the subsoil than the Towerville soil. Also included are small areas of the well drained Chadakoin soils which have less clay in the subsoil than the Towerville soil, and are very deep over bedrock; small areas of Schuyler soils which

are very deep to bedrock; soils that are similar to the Towerville soil but are well drained; and soils that have a channery surface layer. Included areas make up about 15 to 25 percent of the unit.

## Soil properties—

Permeability: Moderate in the surface layer and in the upper part of subsoil, slow or moderately slow in the lower part of the subsoil

Available water capacity: Low to high

Soil reaction: Very strongly acid to moderately acid throughout the soil Water table: At a depth of 1.5 to 2.0 feet from December through April

Flooding hazard: None

Depth to bedrock: 20 to 40 inches

Most areas are wooded and provide wildlife habitat. Some of the less sloping areas are idle, or are used as pasture.

This soil is not suited to cultivated crops or hay because of the slope and the very severe hazard of erosion. Operating farm equipment is very difficult because of the slope. A plant cover that controls runoff and erosion is essential.

This soil is poorly suited to improved pasture due to the steep slopes. A good plant cover needs to be maintained to prevent erosion. Prevention of overgrazing also helps to protect the soil from erosion and gullying. Reseeding pastures is difficult because of the slope. Sufficient applications of lime and fertilizer are needed to improve native pastures.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion is moderate and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building skid trails and roads across the slope minimizes gullying along the trails and roads.

The depth to saturated zone, slope and the depth to bedrock are the main limitations if this soil is used as a site for dwellings with basements. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary. Where outlets are available, installing drains around footings, and sealing foundations and basement walls help to prevent excessive wetness in basements. Land grading and building on the contour help to overcome the slope limitation.

Slope, frost action, depth to saturated zone, and depth to bedrock are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems help to overcome the frost action and wetness. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary. Land grading and building on the contour help to overcome the slope limitation.

Slope, depth to saturated zone, and the depth to bedrock are limitations if this soil is used as a site for septic tank absorption fields. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary. Extensive engineering, design modifications and land shaping are necessary to overcome the limitations imposed by slope and depth to bedrock. Care is needed to prevent the contamination of ground water resulting from seepage through the jointed and fractured bedrock.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 6e.

# 72F—Towerville silt loam, 35 to 50 percent slopes

This soil is very steep, moderately deep, and moderately well drained. It is on valley sides that commonly are dissected by V-shaped gullies. It is in areas where the topography is influenced by the underlying bedrock. Siltstone, shale or sandstone bedrock is at a depth of 20 to 40 inches. The soil receives runoff from the higher adjacent soils. Individual areas are long and narrow, and range from 10 to 75 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 7 inches, dark grayish brown silt loam with 10 percent channers

#### Subsoil:

7 to 15 inches, yellowish brown friable silt loam, with 5 percent channers
15 to 23 inches, light yellowish brown friable silt loam, with yellowish brown iron accumulations and gray iron depletions, and 10 percent channers
23 to 32 inches, brown firm channery silty clay loam, with yellowish brown iron accumulations and dark grayish brown iron depletions, and 20 percent channers

#### Substratum:

32 inches, interbedded sandstone and shale bedrock

Included in mapping are small areas of the somewhat poorly drained Orpark soils along drainageways and in seepage spots, and small areas of Hornell soils, which have more clay in the subsoil than the Towerville soil. Also included are small areas of the well drained Chadakoin soils which have less clay in the subsoil than the Towerville soil, and are very deep over bedrock; small areas of Schuyler soils which are very deep to bedrock; soils that are similar to the Towerville soil but are well drained; and soils that have a channery surface layer. Included areas make up about 15 to 25 percent of the unit.

## Soil properties—

Permeability: Moderate in the surface layer and in the upper part of subsoil, slow or moderately slow in the lower part of the subsoil

Available water capacity: Low to high

Soil reaction: Very strongly acid to moderately acid throughout the soil Water table: At a depth of 1.5 to 2.0 feet from December through April

Flooding hazard: None

Depth to bedrock: 20 to 40 inches

Most areas are wooded and provide wildlife habitat.

This soil is not suited to cultivated crops, hay or pasture. The slope and the very severe hazard of erosion are the main management concerns. The soil is too steep for the safe operation of farm machinery. A plant cover that controls runoff and erosion is essential.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion is severe and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building logging roads and skid trails across the slope helps to control erosion and minimizes gullying along the roads and trails.

Construction is extremely difficult or impractical on this soil. The slope is the main limitation if this soil is used as a site for dwellings with basements, or local roads and streets, or septic tank absorption fields. Erosion is a very serious hazard on construction sites. It can be controlled by minimizing the disturbance and by

revegetating the site as soon as possible. In most areas the native plant cover should not be removed.

The capability subclass is 7e.

# 73B—Gretor channery silt loam, 3 to 8 percent slopes

This soil is gently sloping, moderately deep, and somewhat poorly drained. It is on broad hilltops, side slopes and ridge benches in areas where the topography is influenced by the underlying bedrock. Sandstone or siltstone bedrock is at a depth of 20 to 40 inches. The soil receives runoff from the higher adjacent soils. It occurs at elevations above 1800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are long and narrow, and range from 10 to 75 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 8 inches, very dark grayish brown channery silt loam with 25 percent channers

#### Subsoil:

8 to 13 inches, brown friable channery silt loam, with 25 percent channers 13 to 21 inches, light brownish gray firm channery silt loam, with olive brown and yellowish brown iron accumulations, and 30 percent channers

21 to 25 inches, light olive gray firm channery silty clay loam, with yellowish red iron accumulations, and 25 percent channers

#### Substratum:

25 inches, fine-grained sandstone bedrock

Included in mapping are small areas of poorly drained soils along drainageways and in slight depressions, and small areas of Hornellsville soils, which contain more clay than the Gretor soil. Also included are small areas of Almond soils which are very deep over bedrock; moderately well drained Ischua soils on slight rises and knolls; small areas of soils that have a silt loam surface layer; and small areas which have bedrock within 20 inches of the surface. Included areas make up about 15 to 25 percent of this unit.

## Soil properties—

Permeability: Moderate in the surface layer, moderately slow in the subsoil Available water capacity: Low or moderate

Soil reaction: Very strongly acid to moderately acid in the surface layer and subsoil, and from strongly acid to slightly acid in the substratum

Water table: At a depth of 0.5 to 1.5 feet from November through May

Flooding hazard: None

Depth to bedrock: 20 to 40 inches

Most of the acreage is woodland, or is idle land that is reverting to woodland. Some areas are used for small grain, corn, or hay grown in support of dairy farming. Where drained, this soil meets the requirements for prime farmland.

This soil is moderately well suited to cultivated crops. The growing season is shorter for this soil than for nearby valley soils at lower elevations. The use of short-season or early maturing crop varieties is recommended. Unless a drainage system is installed, planting is delayed in spring, harvesting may be difficult in fall, and the soil can be used only for short-season annual crops, hay, or pasture. Erosion is a hazard on long slopes that are intensively cultivated. If a drainage system is installed, the soil is suited to many crops commonly grown in the county. Interceptor drains can divert runoff, and tile and open-ditch drainage systems can remove excess water.

Installing subsurface drainage systems is difficult because of the underlying bedrock. Contour farming and stripcropping in combination with diversions, terraces, or grassed waterways help to control runoff and erosion. Rotating crops, incorporating crop residue into the soil, minimizing tillage, and growing cover crops help to maintain tilth and increase the content of organic matter. Because of the natural acidity and low fertility, recommended applications of fertilizer and lime are needed to ensure crop growth.

This soil is well suited to water-tolerant grasses and to late-spring pasture. Overgrazing and grazing when the soil is wet are the main concerns in managing pasture.

Grazing when the soil is wet causes surface compaction and restricts plant growth. Overgrazing can deplete the stand of pasture grasses, and thus result in serious erosion and puddling. Plants respond well to applications of lime and fertilizer. Using proper stocking rates, rotating livestock grazing, deferring grazing when the soil is wet, controlling weeds and brush, and selecting water-tolerant species for seeding are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is moderate. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand the seasonal wetness grow best.

The depth to saturated zone and the depth to bedrock are the main limitation if this soil is used as a site for dwellings with basements. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary. Where outlets are available, installing drains around footings, and sealing foundations and basement walls help to prevent excessive wetness in basements.

The depth to saturated zone, frost action, and depth to bedrock are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems increase soil strength and reduce the potential for frost action and the wetness. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary.

The depth to saturated zone, the restricted permeability, and the depth to bedrock are limitations if this soil is used as a site for septic tank absorption fields. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary. Care is needed to prevent the contamination of ground water resulting from seepage through the jointed and fractured bedrock. The absorption field should be installed in suitable fill material. Installing a drainage system in the area around the absorption field helps to overcome the seasonal wetness.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 3w.

# 73C—Gretor channery silt loam, 8 to 15 percent slopes

This soil is strongly sloping, moderately deep, and somewhat poorly drained. It is on valley sides and hillsides in areas where the topography is influenced by the underlying bedrock. Bedrock is at a depth of 20 to 40 inches. The soil receives runoff from the higher adjacent soils. It occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are long and narrow, and range from 10 to 50 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 8 inches, very dark grayish brown channery silt loam with 25 percent channers

Subsoil:

8 to 13 inches, brown friable channery silt loam, with 25 percent channers 13 to 21 inches, light brownish gray firm channery silt loam, with olive brown and yellowish brown iron accumulations, and 30 percent channers

21 to 25 inches, light olive gray firm channery silty clay loam, with yellowish red iron accumulations, and 25 percent channers

Substratum:

25 inches, fine-grained sandstone bedrock

Included in mapping are small areas of poorly drained soils along drainageways and in slight depressions, and small areas of Hornellsville soils, which contain more clay than the Gretor soil. Also included are small areas of Almond soils, which are very deep over bedrock; moderately well drained Ischua soils on sight rises and knolls; small areas of soils that have a silt loam surface layer; and small areas which have bedrock within 20 inches of the surface. Included areas make up about 15 to 25 percent of this unit.

## Soil properties—

Permeability: Moderate in the surface layer, moderately slow in the subsoil

Available water capacity: Low or moderate

Soil reaction: Very strongly acid to moderately acid in the surface layer and subsoil,

and from strongly acid to slightly acid in the substratum

Water table: At a depth of 0.5 to 1.5 feet from November through May

Flooding hazard: None

Depth to bedrock: 20 to 40 inches

Most of the acreage is woodland, or is idle land that is reverting to woodland. Some areas are used for small grain, corn, or hay grown in support of dairy farming.

This soil is moderately well suited to cultivated crops. The growing season is shorter for this soil than for nearby valley soils at lower elevations. The use of short-season or early maturing crop varieties is recommended. Unless a drainage system is installed, planting is delayed in spring, harvesting may be difficult in fall, and the soil can be used only for short-season annual crops, hay, or pasture. Erosion is a hazard on long slopes that are intensively cultivated. If a drainage system is installed, the soil is suited to many crops commonly grown in the county. Interceptor drains can divert runoff, and tile and open-ditch drainage systems can remove excess water. Installing subsurface drainage systems is difficult because of the underlying bedrock. Contour farming and stripcropping in combination with diversions, terraces, or grassed waterways help to control runoff and erosion. Rotating crops, incorporating crop residue into the soil, minimizing tillage, and growing cover crops help to maintain tilth and increase the content of organic matter. Because of the natural acidity and low fertility, the soil requires recommended applications of fertilizer and lime for adequate crop growth.

This soil is moderately well suited to water-tolerant grasses and to late-spring pasture. Overgrazing and grazing when the soil is wet are the main concerns in managing pasture. Grazing when the soil is wet causes surface compaction and restricts plant growth. Overgrazing can deplete the stand of pasture grasses, and thus result in serious erosion and puddling. Plants respond well to applications of lime and fertilizer. Using proper stocking rates, rotating livestock grazing, deferring grazing

when the soil is wet, controlling weeds and brush, and selecting water-tolerant species for seeding are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand the seasonal wetness grow best. Building logging roads and skid trails on the contour helps control erosion and minimizes gullying along the trails.

The depth to saturated zone, depth to bedrock and slope are the main limitations if this soil is used as a site for dwellings with basements. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary. Where outlets are available, installing drains around footings and sealing foundations and basement walls help to prevent excessive wetness in basements. Land grading and building on the contour help to overcome the slope limitation.

The depth to saturated zone, frost action, slope and depth to bedrock are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems increase soil strength and reduce the potential for frost action and wetness. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary. Land grading and building on the contour help to overcome the slope limitation.

The depth to saturated zone, the restricted permeability, and the depth to bedrock are limitations if this soil is used as a site for septic tank absorption fields. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary. Care is needed to prevent the contamination of ground water resulting from seepage through the jointed and fractured bedrock. The absorption field should be installed in suitable fill material. Installing a drainage system in the area around the absorption field helps to overcome the seasonal wetness.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 3e.

# 74—Ashville silt loam

This soil is nearly level, very deep, and poorly drained. It is along drainageways, on broad flats, and in small depressions on glaciated uplands. Individual areas are circular or oblong and range from 5 to 30 acres in size. Slopes generally are smooth and range from 0 to 3 percent.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 9 inches, very dark gray silt loam with 5 percent channers

Subsoil:

- 9 to 16 inches, gray friable silt loam, with olive brown and strong brown iron accumulations, and 5 percent channers
- 16 to 23 inches, grayish brown friable silt loam, with yellowish brown and dark brown iron accumulations, and 10 percent channers
- 23 to 44 inches, dark grayish brown firm channery silt loam, with brown and yellowish brown iron accumulations and light brownish gray iron depletions, and 15 percent channers

#### Substratum:

44 to 72 inches, grayish brown firm channery silt loam, with brown and yellowish brown iron accumulations, and 20 percent channers

Included in mapping are small areas of Canandaigua, Fremont, and Busti soils. Canandaigua soils are silty throughout, and are on broad flats. The somewhat poorly drained Fremont and Busti soils are on the slightly higher rises and knolls. Also included are small areas of very poorly drained Alden soils which have a mucky surface, and small areas of soils having a silty colluvial surface layer that is thicker than that of the Ashville soil. Included areas make up about 10 to 25 percent of this unit.

## Soil properties—

Permeability: Moderate in the surface layer, moderately slow in the subsoil, and slow or moderately slow in the substratum

Available water capacity: High

Soil reaction: Strongly acid to neutral in the surface layer, from moderately acid to neutral in the subsoil, and from moderately acid to moderately alkaline in the substratum

Water table: At the surface or to a depth of 0.5 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas have been cleared and are used as pasture. Some areas support water-tolerant vegetation and trees. Some drained areas are used for cultivated crops or hay. This soil meets the requirements for hydric soils.

Unless drained, this soil is poorly suited to cultivated crops. If the soil is protected against excessive runoff from the adjacent soils and is drained, selected crops can be grown. Generally, the soil is in depressions that are surrounded by better drained soils. If subsurface tile is installed to improve drainage and open ditches are provided to divert runoff, the soil can be farmed along with the better drained adjacent soils. Tilling only when the soil is at the proper moisture content, incorporating crop residue into the soil, and rotating crops improve tilth and help to maintain the content of organic matter. Tilling at the proper moisture content also minimizes compaction and clodding.

This soil is poorly suited to hay and pasture. The seasonal high water table restricts the growth of the roots of some forage crops. Prevention of overgrazing and restricted grazing when the soil is wet are the main concerns in managing pasture. If the pasture is grazed during wet periods, the surface layer can easily become compacted. Using proper stocking rates, selecting water-tolerant species for seeding, rotating livestock grazing, deferring grazing when the soil is wet, and controlling weeds and brush are the main management concerns. Improving drainage increases forage production.

The potential productivity of this soil for red maple is moderate. The hazard of offroad or off-trail erosion and the hazard of erosion on roads and trails are slight. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand the seasonal wetness grow best.

Depth to saturated zone is the main limitation if this soil is used as a site for dwellings with basements. Under natural conditions, this soil is too wet for the construction of dwellings with basements. Included areas of the somewhat poorly drained Fremont and Busti soils may be better sites for these dwellings.

Depth to saturated zone and frost action are the main limitations if this soil is used as a site for local roads and streets. Building on raised fill material and installing a drainage system help to overcome these limitations.

The depth to saturated zone and the restricted permeability in the subsoil and substratum are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal

systems are installed. Adjacent areas that are more suitable, should be considered for locating septic tank absorption fields.

In many areas this soil is well suited to wetland wildlife habitat and to the development of recreational ponds.

The capability subclass is 4w.

# 75—Alden mucky silt loam

This soil is very deep, nearly level, and very poorly drained. It commonly is in low areas, in depressions, and in headwater areas of streams. Individual areas are oblong or circular in shape and range from 5 to 50 acres in size. Slopes generally are smooth and range from 0 to 3 percent.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface laver:

0 to 6 inches, black mucky silt loam with 2 percent gravel

Subsoil:

6 to 16 inches, gray friable silt loam, with yellowish brown iron accumulations, and 2 percent gravel

16 to 25 inches, gray friable silty clay loam, with yellowish brown iron accumulations, and 2 percent gravel

Substratum:

25 to 36 inches, gray friable silty clay loam, with brown iron accumulations, and 5 percent gravel

36 to 49 inches, gray friable loam, with brown iron accumulations, and 10 percent gravel

49 to 72 inches, light brownish gray friable gravelly fine sandy loam, with gray iron depletions, and 20 percent gravel

Included in mapping are small areas of the poorly drained Ashville soils in the slightly higher positions on the landscape. Also included are the very poorly drained Canandaigua soils, which have less gravel throughout the profile, and the poorly drained Wayland soils in low areas on flood plain. Included areas make up about 10 to 20 percent of the unit.

# Soil properties—

Permeability: Moderate in the surface layer and moderately slow in the subsoil and moderately slow or slow in the substratum

Available water capacity: Moderate or high

Soil reaction: Strongly acid to neutral in the surface layer, moderately acid to neutral in the subsoil, and moderately acid to slightly alkaline in the substratum

Water table: At or above the surface throughout the year

Rooting Zone: Restricted by the seasonal high water table

Flooding hazard: None

Depth to bedrock: More than 6 feet

Ponding hazard: As much as 1.0 feet above the surface from September through June, and as much as 0.5 feet above the surface in July and August

Most of the acreage is idle land that supports water-tolerant shrubs and trees. Some areas are used as pasture. This soil meets the requirements for hydric soils.

This soil is generally unsuited to most crops due to the high seasonal water table and ponding throughout much of the year.

This soil is poorly suited to hay and pasture. The seasonal high water table restricts root growth of most forage crops.

The potential productivity of this soil for red maple is moderate. The hazard of off-road or off-trail erosion and the hazard of erosion on roads and trails are slight. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand wetness grow best.

Depth to saturated zone and ponding are the main management concerns if this soil is used as a site for dwellings with basements and local roads and streets. Frost action is also a limitation for local roads and streets. Building on raised coarse textured fill material and installing a drainage system will reduce wetness and frost action. This soil is too wet for the construction of dwellings with basements without major modifications. Adjacent areas that are better drained should be considered for these uses first.

The depth to saturated zone, ponding, and restricted permeability in the subsoil and substratum are the main limitations if this soil is used as a site for septic tank absorption fields. This soil is too wet for septic tank absorption fields. Extensive engineering and design modification are needed if the soil is used for onsite waste disposal systems. Adjacent areas that are more suitable should be considered for locating septic tank absorption fields.

Many areas of this soil are well suited to wetland wildlife habitat or to the development of recreational ponds.

The capability subclass is 5w.

# 76A—Orpark silt loam, 0 to 3 percent slopes

This soil is nearly level, moderately deep, and somewhat poorly drained. It is on flat ledges and ridge crests in areas where the topography is influenced by the underlying bedrock. Shale or siltstone bedrock is at a depth of 20 to 40 inches. Individual areas are elongated, and range from 10 to 50 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 8 inches, very dark grayish brown silt loam with 5 percent channers

#### Subsoil:

- 8 to 12 inches, light olive brown friable silt loam, with strong brown iron accumulations and olive gray iron depletions, and 5 percent channers
- 12 to 22 inches, light olive brown firm silty clay loam, with strong brown iron accumulations and olive gray iron depletions, and 10 percent channers

#### Substratum:

- 22 to 24 inches, light olive brown firm silt loam, with strong brown iron accumulations and olive gray iron depletions, and 5 percent channers
- 24 to 26 inches, olive brown firm extremely channery silty clay loam, with strong brown, dark gray and gray weathered shale, and 70 percent channers26 inches, soft shale bedrock interbedded with siltstone

Included in mapping are small areas of poorly drained soils along drainageways and in slight depressions, and small areas of Hornell soils which contain more clay than the Orpark soil. Also included are small areas of Fremont soils which are very deep over bedrock; small areas of poorly drained Ashville soils which are very deep to bedrock, and small areas of soils that have a channery surface layer. Included areas make up about 15 to 25 percent of this unit.

# Soil properties—

Permeability: Moderate in the surface layer, moderately slow or slow in the subsoil and substratum

Available water capacity: Low or moderate

Soil reaction: Very strongly acid or strongly acid throughout the profile Water table: At a depth of 0.5 to 1.5 feet from November through May

Flooding hazard: None

Depth to bedrock: 20 to 40 inches

Most of the acreage is woodland, or is idle land that is reverting to woodland. Some areas are used for small grain, corn, or hay grown in support of dairy farming. Where drained, this soil meets the requirements for prime farmland.

This soil is moderately well suited to cultivated crops. It is limited by the seasonal wetness, the content of clay in the subsoil, and low natural fertility. Installing subsurface drains can be difficult because of the moderate depth to bedrock. Plowing at the proper moisture content is important because the subsoil tends to develop poor tilth and become cloddy if the soil is tilled when wet. Harvesting crops during prolonged wet periods in fall is more difficult on this soil than on the more sloping adjacent Orpark soils. Sufficient applications of fertilizer and lime commonly are required for optimum crop growth. Incorporating crop residue into the soil, growing cover crops, and tilling only when the soil is at the proper moisture content help to maintain tilth and increase the content of organic matter.

This soil is well suited to water-tolerant grasses and to late-spring pasture. Overgrazing and grazing when the soil is wet are the main concerns in managing pasture. Grazing when the soil is wet causes surface compaction and restricts plant growth. Overgrazing can deplete the stand of pasture grasses, and thus result in erosion. Plants respond well to applications of lime and fertilizer. Using proper stocking rates, rotating livestock grazing, deferring grazing when the soil is wet, controlling weeds and brush, and selecting water-tolerant species for seeding are the main management practices.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion and the hazard of erosion on roads and trails are slight. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand the seasonal wetness grow best.

The depth to saturated zone and the depth to soft bedrock are the main limitation if this soil is used as a site for dwellings with basements. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary. Where outlets are available, installing drains around footings, and sealing foundations and basement walls help to prevent excessive wetness in basements.

The depth to saturated zone and frost action are the main limitations on sites for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems increase soil strength and reduce the potential for frost action and wetness.

The depth to saturated zone, the restricted permeability, and the depth to bedrock are limitations on sites for septic tank absorption fields. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary. Care is needed to prevent the contamination of ground water resulting from seepage through the jointed and fractured bedrock. The absorption field should be installed in suitable fill material. Installing a drainage system in the area around the absorption field helps to overcome the seasonal wetness.

The capability subclass is 3w.

# 76B—Orpark silt loam, 3 to 8 percent slopes

This soil is gently sloping, moderately deep, and somewhat poorly drained. It is on broad hilltops, side slopes and ridge benches in areas where the topography is

influenced by the underlying bedrock. Shale or siltstone bedrock is at a depth of 20 to 40 inches. The soil receives runoff from the higher adjacent soils. Individual areas are long and narrow, and range from 10 to 75 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 8 inches, very dark grayish brown silt loam with 5 percent channers

#### Subsoil:

8 to 12 inches, light olive brown friable silt loam, with strong brown iron accumulations and olive gray iron depletions, and 5 percent channers

12 to 22 inches, light olive brown firm silty clay loam, with strong brown iron accumulations and olive gray iron depletions, and 10 percent channers

#### Substratum:

22 to 24 inches, light olive brown firm silt loam, with strong brown iron accumulations and olive gray iron depletions, and 5 percent channers

24 to 26 inches, olive brown firm extremely channery silty clay loam, with strong brown, dark gray and gray weathered shale, and 70 percent channers26 inches, soft shale bedrock interbedded with siltstone

Included in mapping are small areas of poorly drained soils along drainageways and in slight depressions, and small areas of Hornell soils which contain more clay than the Orpark soil. Also included are small areas of Fremont soils which are very deep over bedrock; small areas of poorly drained Ashville soils which are very deep to bedrock, and small areas of soils that have a channery surface layer. Included areas make up about 15 to 25 percent of this unit.

## Soil properties—

Permeability: Moderate in the surface layer, moderately slow or slow in the subsoil and substratum

Available water capacity: Low or moderate

Soil reaction: Very strongly acid or strongly acid throughout the profile Water table: At a depth of 0.5 to 1.5 feet from November through May

Flooding hazard: None

Depth to bedrock: 20 to 40 inches

Most of the acreage is woodland, or is idle land that is reverting to woodland. Some areas are used for small grain, corn, or hay grown in support of dairy farming. Where drained, this soil meets the requirements for prime farmland.

This soil is moderately well suited to crops. Unless a drainage system is installed, planting is delayed in spring, harvesting may be difficult in fall, and the soil can be used only for short-season annual crops, hay, or pasture. Erosion is a hazard on long slopes that are intensively cultivated. If a drainage system is installed, the soil is suited to many of the crops commonly grown in the county. Interceptor drains can divert runoff, and tile and open-ditch drainage systems can remove excess water. Installing subsurface drainage systems is difficult because of the underlying bedrock. Contour farming and stripcropping in combination with diversions, terraces, or grassed waterways help to control runoff and erosion. Rotating crops, incorporating crop residue into the soil, minimizing tillage, and growing cover crops help to maintain tilth and increase the content of organic matter. Because of the natural acidity and low fertility, sufficient applications of fertilizer and lime are needed for good crop growth.

This soil is well suited to water-tolerant grasses and to late-spring pasture. Overgrazing and grazing when the soil is wet are the main concerns in managing pasture.

Grazing when the soil is wet causes surface compaction and restricts plant growth. Overgrazing can deplete the stand of pasture grasses, and thus result in serious erosion and puddling. Plants respond well to applications of lime and fertilizer. Using proper stocking rates, rotating livestock grazing, deferring grazing when the soil is wet, controlling weeds and brush, and selecting water-tolerant species for seeding are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is moderate. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand the seasonal wetness grow best.

The depth to saturated zone and the depth to soft bedrock are the main limitation on sites for dwellings with basements. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary. Where outlets are available, installing drains around footings, and sealing foundations and basement walls help to prevent excessive wetness in basements.

The depth to saturated zone and frost action are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems increase soil strength and reduce the potential for frost action and wetness.

The depth to saturated zone, the restricted permeability, and the depth to bedrock are limitations if this soil is used as a site for septic tank absorption fields. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary. Care is needed to prevent the contamination of ground water resulting from seepage through the jointed and fractured bedrock. The absorption field should be installed in suitable fill material. Installing a drainage system in the area around the absorption field helps to overcome the seasonal wetness.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 3w.

# 76C—Orpark silt loam, 8 to 15 percent slopes

This soil is strongly sloping, moderately deep, and somewhat poorly drained. It is on valley sides and hillsides in areas where the topography is influenced by the underlying bedrock. Shale or siltstone bedrock is at a depth of 20 to 40 inches. The soil receives runoff from the higher adjacent soils. Individual areas are long and narrow, and range from 10 to 50 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 8 inches, very dark grayish brown silt loam with 5 percent channers

Subsoil:

- 8 to 12 inches, light olive brown friable silt loam, with strong brown iron accumulations and olive gray iron depletions, and 5 percent channers
- 12 to 22 inches, light olive brown firm silty clay loam, with strong brown iron accumulations and olive gray iron depletions, and 10 percent channers

## Substratum:

22 to 24 inches, light olive brown firm silt loam, with strong brown iron accumulations and olive gray iron depletions, and 5 percent channers

24 to 26 inches, olive brown firm extremely channery silty clay loam, with strong brown, dark gray and gray weathered shale, and 70 percent channers 26 inches, soft shale bedrock interbedded with siltstone

Included in mapping are small areas of poorly drained soils along drainageways and in slight depressions, and small areas of Hornell soils, which contain more clay than the Orpark soil. Also included are small areas of Fremont soils which are very deep over bedrock; small areas of poorly drained Ashville soils which are very deep to bedrock, and small areas of soils that have a channery surface layer. Included areas make up about 15 to 25 percent of this unit.

## Soil properties—

Permeability: Moderate in the surface layer, moderately slow or slow in the subsoil and substratum

Available water capacity: Low or moderate

Soil reaction: Very strongly acid or strongly acid throughout the profile Water table: At a depth of 0.5 to 1.5 feet from November through May

Flooding hazard: None

Depth to bedrock: 20 to 40 inches

Most of the acreage is woodland, or is idle land that is reverting to woodland. Some areas are used for small grain, corn, or hay grown in support of dairy farming.

This soil is moderately well suited to crops. Unless a drainage system is installed, planting is delayed in spring, harvesting may be difficult in fall, and the soil can be used only for short-season annual crops, hay, or pasture. Erosion is a hazard on long slopes that are intensively cultivated. If a drainage system is installed, the soil is suited to many of the crops commonly grown in the county. Interceptor drains can divert runoff, and tile and open-ditch drainage systems can remove excess water. Installing subsurface drainage systems is difficult because of the underlying bedrock. Contour farming and stripcropping in combination with diversions, terraces, or grassed waterways help to control runoff and erosion. Rotating crops, incorporating crop residue into the soil, minimizing tillage, and growing cover crops help to maintain tilth and increase the content of organic matter. Because of the natural acidity and low fertility, the soil requires sufficient applications of fertilizer and lime for good crop growth.

This soil is moderately well suited to water-tolerant grasses and to late-spring pasture. Overgrazing and grazing when the soil is wet are the main concerns in managing pasture. Grazing when the soil is wet causes surface compaction and restricts plant growth. Overgrazing can deplete the stand of pasture grasses, and thus result in serious erosion and puddling. Plants respond well to applications of lime and fertilizer. Using proper stocking rates, rotating livestock grazing, deferring grazing when the soil is wet, controlling weeds and brush, and selecting water-tolerant species for seeding are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand the seasonal wetness grow best. The depth to saturated zone, depth to soft bedrock and slope are the main limitation on sites for dwellings with basements. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary. Where outlets are available, installing drains around footings and sealing foundations and basement walls help to prevent excessive wetness in basements. Land grading and building on the contour help to overcome the slope limitation.

The depth to saturated zone, frost action, and slope are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems increase soil strength and reduce the potential for frost action and wetness. Land grading and building on the contour help to overcome the slope limitation.

The depth to saturated zone, the restricted permeability, and the depth to bedrock are limitations if this soil is used as a site for septic tank absorption fields. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary. Care is needed to prevent the contamination of ground water resulting from seepage through the jointed and fractured bedrock. The absorption field should be installed in suitable fill material. Installing a drainage system in the area around the absorption field helps to overcome the seasonal wetness.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 3e.

# 77A—Chippewa silt loam, 0 to 3 percent slopes

This soil is nearly level, very deep, and poorly drained. It is along drainageways, on broad flats, and in small depressions on glaciated uplands. Individual areas are circular or oblong, and range from 5 to 30 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 6 inches, very dark gray silt loam with 5 percent channers

## Subsurface layer:

6 to 13 inches, gray friable silt loam with dark yellowish brown and yellowish brown iron accumulations, and 5 percent channers

#### Subsoil:

- 13 to 19 inches, gray friable silty clay loam, with strong brown iron accumulations, and 10 percent channers
- 19 to 41 inches, dark grayish brown very firm channery silt loam, with yellowish brown and olive brown iron accumulations and gray iron depletions, and 20 percent channers

#### Substratum:

41 to 72 inches, grayish brown firm channery silt loam, with strong brown and olive brown iron accumulations, and 25 percent channers

Included in mapping are small areas of Ashville, Canandaigua, Volusia, and Alden soils. Ashville and Alden soils lack a fragipan in the subsoil. Canandaigua soils are silty throughout. The somewhat poorly drained Volusia soils are on the slightly higher rises and knolls. Also included are small areas of soils having a silty colluvial surface layer that is thicker than that of the Chippewa soil. Included areas make up about 10 to 25 percent of this unit.

#### Soil properties—

Permeability: Moderate above the fragipan, and slow or very slow in the fragipan and substratum

Available water capacity: Very low or low

Soil reaction: Very strongly acid to slightly acid above the fragipan, from strongly acid to neutral in the fragipan, and from moderately acid to moderately alkaline in the substratum

Water table: At the surface or to a depth of 0.5 foot from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas have been cleared and are used as pasture. Some areas support water-tolerant vegetation and trees. Some drained areas are used for cultivated crops or hay. This soil meets the requirements for hydric soils.

This soil is poorly suited to cultivated crops. Tilling only when the soil is at the proper moisture content, incorporating crop residue into the soil, and rotating crops improve tilth and help to maintain the content of organic matter. Tilling at the proper moisture content also minimizes compaction and clodding.

This soil is poorly suited to hay and pasture. The seasonal high water table restricts root growth of some forage crops. Prevention of overgrazing and restricted grazing when the soil is wet are the main concerns in managing pasture. If the pasture is grazed during wet periods, the surface layer can easily become compacted. Using proper stocking rates, selecting water-tolerant species for seeding, rotating livestock grazing, deferring grazing when the soil is wet, and controlling weeds and brush are the main management concerns.

The potential productivity of this soil for red maple is moderate. The hazard of offroad or off-trail erosion and the hazard of erosion on roads and trails are slight. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand the seasonal wetness grow best.

The depth to saturated zone is the main limitation if this soil is used as a site for dwellings with basements. The soil is too wet for the construction of dwellings with basements without major modifications. Included areas of the somewhat poorly drained Volusia soils may be better sites for these dwellings.

Depth to saturated zone and frost action are the main limitations if this soil is used as a site for local roads and streets. Building on raised coarse textured fill material and installing a drainage system help to overcome these limitations.

The depth to saturated zone, depth to dense material, and restricted permeability are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Adjacent areas that are more suitable should be considered for locating septic tank absorption fields.

In many areas this soil is well suited to wetland wildlife habitat and to the development of recreational ponds.

The capability subclass is 4w.

# 78A—Hornell silt loam, 0 to 3 percent slopes

This soil is nearly level, moderately deep, and somewhat poorly drained. It is on broad flats and hilltops in areas where the topography is influenced by the underlying bedrock. Soft shale bedrock is at a depth of 20 to 40 inches. Individual areas are oblong, and range from 10 to 50 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 8 inches, dark grayish brown silt loam with 5 percent channers

Subsoil:

8 to 12 inches, light olive brown friable silty clay loam, with yellowish brown iron accumulations, and 5 percent channers

12 to 15 inches, light olive brown firm silty clay loam, with strong brown iron accumulations and grayish brown iron depletions, and 5 percent channers

15 to 28 inches, olive brown firm silty clay, with light olive gray iron depletions, and 5 percent channers

Substratum:

28 to 34 inches, grayish brown firm channery silty clay loam, with light olive brown iron accumulations and 25 percent channers

34 inches, soft shale bedrock

Included in mapping are small areas of poorly drained soils along drainageways and in slight depressions, small areas of Orpark soils which have less clay than the Hornell soils, and small areas of Towerville soils which have less clay in the subsoil than the Hornell soils. Also included are small areas of soils that have bedrock at a depth of more than 40 inches, and small areas of Fremont soils which are very deep over bedrock, and have less clay in the subsoil than the Hornell soil. Included areas make up about 15 to 25 percent of this unit.

# Soil properties—

Permeability: Moderate in the surface layer, slow or very slow in the subsoil and substratum

Available water capacity: Low to moderate

Soil reaction: Extremely acid through strongly acid in the surface layer, and very strongly acid or strongly acid in the subsoil and substratum

Water table: At a depth of 0.5 to 1.5 feet from November through May

Flooding hazard: None

Depth to bedrock: 20 to 40 inches

Most of the acreage is woodland, or is idle land that is reverting to woodland. Some areas are used for small grain, corn, or hay grown in support of dairy farming. Where drained, this soil meets the requirements for prime farmland.

Unless drained, this soil is moderately well suited to cultivated crops because of the seasonal wetness. Unless a drainage system is installed, planting is delayed in spring, harvesting may be difficult in fall, and the soil can be used only for short-season annual crops, hay or pasture. If a drainage system is installed, the soil is suited to most of the crops commonly grown in the county. Interceptor drains can divert runoff, and tile and open-ditch drainage systems can remove excess water. Installing subsurface drainage systems may be difficult because of the underlying bedrock. Rotating crops, incorporating crop residue into the soil, minimizing tillage, and growing cover crops help to maintain tilth and increase the content of organic matter. Because of natural acidity and low fertility, the soil requires sufficient applications of fertilizer and lime to be highly productive.

This soil is well suited to water-tolerant hay and late-spring pasture. Overgrazing and grazing when the soil is wet are the main concerns of managing pasture. Grazing when the soil is wet causes soil compaction, restricts plant growth, and can deplete the stand of pasture grasses. Plants respond well to applications of lime and fertilizer. Using proper stocking rates, rotating livestock grazing, deferring grazing when the soil is wet, controlling weeds and brush, and selecting water-tolerant species for seeding are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion and the hazard of erosion on roads and trails are slight. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand the seasonal wetness grow best.

The depth to saturated zone, shrink-swell potential and the depth to bedrock are the main limitations if this soil is used as a site for dwellings with basements. The shale bedrock generally can be ripped with a backhoe. Where outlets are available, installing drains around footings and sealing foundations and basement walls help to prevent excessive wetness in basements and reduce the shrink-swell potential.

The depth to saturated zone, frost action, and shrink-swell potential are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems increase soil strength and reduce the wetness and the potential for frost action.

The depth to saturated zone, the restricted permeability, and the depth to bedrock are limitations if this soil is used as a site for septic tank absorption fields. The shale bedrock generally can be ripped with a backhoe. Care is needed to prevent the contamination of ground water resulting from seepage through the jointed and fractured bedrock. The absorption field should be installed in suitable fill material. Installing a drainage system in the area around the absorption field helps to overcome the seasonal wetness.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible. Recompacting this soil after it has been disturbed commonly is difficult because of the content of clay.

The capability subclass is 3w.

# 78B—Hornell silt loam, 3 to 8 percent slopes

This soil is gently sloping, moderately deep, and somewhat poorly drained. It is on broad flats and hilltops in areas where the topography is influenced by the underlying bedrock. Soft shale bedrock is at a depth of 20 to 40 inches. Individual areas are oblong, and range from 10 to 50 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 8 inches, dark grayish brown silt loam with 5 percent channers

#### Subsoil

- 8 to 12 inches, light olive brown friable silty clay loam, with yellowish brown iron accumulations, and 5 percent channers
- 12 to 15 inches, light olive brown firm silty clay loam, with strong brown iron accumulations and grayish brown iron depletions, and 5 percent channers
- 15 to 28 inches, olive brown firm silty clay, with light olive gray iron depletions, and 5 percent channers

## Substratum:

28 to 34 inches, grayish brown firm channery silty clay loam, with light olive brown iron accumulations and 25 percent channers

34 inches, soft shale bedrock

Included in mapping are small areas of poorly drained soils along drainageways and in slight depressions, small areas of Orpark soils which have less clay than the Hornell soils, and small areas of Towerville soils which have less clay in the subsoil than the Hornell soils. Also included are small areas of soils that have bedrock at a depth of more than 40 inches, and small areas of Fremont soils which are very deep over bedrock and have less clay in the subsoil than the Hornell soil. Included areas make up about 15 to 25 percent of this unit.

#### Soil properties—

Permeability: Moderate in the surface layer, slow or very slow in the subsoil and substratum

Available water capacity: Low or moderate

Soil reaction: Extremely acid through strongly acid in the surface layer, and very strongly or strongly acid in the subsoil and substratum

Water table: At a depth of 0.5 to 1.5 feet from November through May

Flooding hazard: None

Depth to bedrock: 20 to 40 inches

Most of the acreage is woodland, or is idle land that is reverting to woodland. Some areas are used for small grain, corn, or hay grown in support of dairy farming.

This soil is moderately well suited to cultivated crops. Seasonal wetness is the main management concern. Unless a drainage system is installed, planting is delayed in spring, harvesting may be difficult in fall, and the soil can be used only for short-season annual crops, hay or pasture. Erosion is a hazard on long slopes that are intensively cultivated. If a drainage system is installed, the soil is suited to most of the crops commonly grown in the county. Interceptor drains can divert runoff, and tile and open-ditch drainage systems can remove excess water. Installing subsurface drainage systems may be difficult because of the underlying bedrock. Contour farming and stripcropping in combination with diversions, terraces, or grassed waterways help to control runoff and erosion. Rotating crops, incorporating crop residue into the soil, minimizing tillage, and growing cover crops help to maintain tilth and increase the content of organic matter. Because of natural acidity and low fertility, the soil requires sufficient applications of fertilizer and lime to remain productive.

This soil is well suited to water-tolerant hay and late-spring pasture. Overgrazing and grazing when the soil is wet are the main concerns of managing pasture. Grazing when the soil is wet causes soil compaction, restricts plant growth, and can deplete the stand of pasture grasses and thus result in serious erosion and in puddling. Plants respond well to applications of lime and fertilizer. Using proper stocking rates, rotating livestock grazing, deferring grazing when the soil is wet, controlling weeds and brush, and selecting water-tolerant species for seeding are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is moderate. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand the seasonal wetness grow best.

The depth to saturated zone, shrink-swell potential and the depth to bedrock are the main limitations if this soil is used as a site for dwellings with basements. The shale bedrock generally can be ripped with a backhoe. Where outlets are available, installing drains around footings, and sealing foundations and basement walls help to prevent excessive wetness in basements and reduce the shrink-swell potential.

The depth to saturated zone, frost action, and shrink-swell potential are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems increase soil strength and reduce the wetness and the potential for frost action.

The depth to saturated zone, the restricted permeability, and the depth to bedrock are limitations if this soil is used as a site for septic tank absorption fields. The shale bedrock generally can be ripped with a backhoe. Care is needed to prevent the contamination of ground water resulting from seepage through the jointed and fractured bedrock. The absorption field should be installed in suitable fill material. Installing a drainage system in the area around the absorption field helps to overcome the seasonal wetness.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible. Recompacting this soil after it has been disturbed commonly is difficult because of the content of clay.

The capability subclass is 3w.

# 78C—Hornell silt loam, 8 to 15 percent slopes

This soil is strongly sloping, moderately deep, and somewhat poorly drained. It is on valley sides and hillsides in areas where the topography is influenced by the underlying bedrock. Soft shale bedrock is at a depth of 20 to 40 inches. The soil receives runoff from the higher adjacent areas. Individual areas are long and narrow, and range from 10 to 50 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 8 inches, dark grayish brown silt loam with 5 percent channers

#### Subsoil:

8 to 12 inches, light olive brown friable silty clay loam, with yellowish brown iron accumulations, and 5 percent channers

12 to 15 inches, light olive brown firm silty clay loam, with strong brown iron accumulations and grayish brown iron depletions, and 5 percent channers

15 to 28 inches, olive brown firm silty clay, with light olive gray iron depletions, and 5 percent channers

## Substratum:

28 to 34 inches, grayish brown firm channery silty clay loam, with light olive brown iron accumulations and 25 percent channers

34 inches, soft shale bedrock

Included in mapping are small areas of poorly drained soils along drainageways and in slight depressions, small areas of Orpark soils which have less clay than the Hornell soils, and small areas of Towerville soils which have less clay in the subsoil than the Hornell soils. Also included are small areas of soils that have bedrock at a depth of more than 40 inches, and small areas of Fremont soils which are very deep over bedrock and have less clay in the subsoil than the Hornell soil. Included areas make up about 15 to 25 percent of this unit.

## Soil properties—

Permeability: Moderate in the surface layer, slow or very slow in the subsoil and substratum

Available water capacity: Low or moderate

Soil reaction: Extremely acid to strongly acid in the surface layer, and very strongly or strongly acid in the subsoil and substratum

Water table: At a depth of 0.5 to 1.5 feet from November through May

Flooding hazard: None

Depth to bedrock: 20 to 40 inches

Most of the acreage is woodland or is idle land that is reverting to woodland. Some areas are used for small grain, corn, or hay grown in support of dairy farming.

This soil is moderately well suited to cultivated crops. Seasonal wetness is the main management concern. Unless a drainage system is installed, planting is delayed in spring, harvesting may be difficult in fall, and the soil can be used only for short-season annual crops, hay or pasture. Erosion is a serious hazard on slopes that are intensively cultivated. If a drainage system is installed, the soil is suited to most of the crops commonly grown in the county. Interceptor drains can divert runoff, and tile and open-ditch drainage systems can remove excess water. Installing subsurface drainage systems may be difficult because of the underlying bedrock. Contour farming and stripcropping in combination with diversions, terraces, or grassed waterways help to control runoff and erosion. Rotating crops, incorporating crop residue into the soil, minimizing tillage, and growing cover crops help to maintain tilth and increase the content of organic matter. Because of natural acidity and low fertility, the soil requires sufficient applications of fertilizer and lime.

This soil is well suited to water-tolerant hay and late-spring pasture. Overgrazing and grazing when the soil is wet are the main concerns of managing pasture. Grazing

when the soil is wet causes soil compaction, restricts plant growth, and can deplete the stand of pasture grasses, and thus result in serious erosion. Plants respond well to applications of lime and fertilizer. Using proper stocking rates, rotating livestock grazing, deferring grazing when the soil is wet, controlling weeds and brush, and selecting water-tolerant species for seeding are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion is moderate and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand the seasonal wetness grow best. Building logging roads and skid trails on the contour helps control erosion and minimizes gullying along the trails.

The depth to saturated zone, shrink-swell potential, slope, and the depth to bedrock are the main limitations if this soil is used as a site for dwellings with basements. The shale bedrock generally can be ripped with a backhoe. Where outlets are available, installing drains around footings, and sealing foundations and basement walls help to prevent excessive wetness in basements and reduce the shrink-swell potential. Land grading and building on the contour help to overcome the slope limitation.

The depth to saturated zone, frost action, slope, and shrink-swell potential are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems increase soil strength, and reduce the wetness and the potential for frost action. Land grading and building on the contour help to overcome the slope limitation.

The depth to saturated zone, the restricted permeability, and the depth to bedrock are limitations if this soil is used as a site for septic tank absorption fields. The shale bedrock generally can be ripped with a backhoe. Care is needed to prevent the contamination of ground water resulting from seepage through the jointed and fractured bedrock. The absorption field should be installed in suitable fill material. Installing a drainage system in the area around the absorption field helps to overcome the seasonal wetness.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible. Recompacting this soil after it has been disturbed commonly is difficult because of the content of clay.

The capability subclass is 3e.

# 78D—Hornell silt loam, 15 to 25 percent slopes

This soil is moderately steep, moderately deep, and somewhat poorly drained. It is on valley sides that commonly are dissected by V-shaped gullies. It is in areas where the topography is influenced by the underlying bedrock. Soft shale bedrock is at a depth of 20 to 40 inches. The soil receives runoff from the higher adjacent soils. Individual areas are long and narrow, and range from 10 to 75 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 8 inches, dark grayish brown silt loam with 5 percent channers

Subsoil:

- 8 to 12 inches, light olive brown friable silty clay loam, with yellowish brown iron accumulations, and 5 percent channers
- 12 to 15 inches, light olive brown firm silty clay loam, with strong brown iron accumulations and grayish brown iron depletions, and 5 percent channers
- 15 to 28 inches, olive brown firm silty clay, with light olive gray iron depletions, and 5 percent channers

Substratum:

28 to 34 inches, grayish brown firm channery silty clay loam, with light olive brown iron accumulations and 25 percent channers

34 inches, soft shale bedrock

Included in mapping are small areas of poorly drained soils along drainageways and in seepage spots, and small areas of Orpark soils and Towerville soils which have less clay than the Hornell soil. Also included are small areas of the moderately well drained Schuyler soils which are very deep over bedrock and have less clay in the subsoil than the Hornell soil, small areas of Hudson soils which are very deep to bedrock, and small areas of soils that are similar to Hornell but have bedrock at a depth of more than 40 inches. Included areas make up about 15 to 25 percent of this unit.

## Soil properties—

Permeability: Moderate in the surface layer, slow or very slow in the subsoil and substratum

Available water capacity: Low or moderate

Soil reaction: Extremely acid through strongly acid in the surface layer, and very

strongly or strongly acid in the subsoil and substratum

Water table: At a depth of 0.5 to 1.5 feet from November through May

Flooding hazard: None

Depth to bedrock: 20 to 40 inches

Most areas are used as woodland. Some of the acreage is idle land that is reverting to woodland. A few small areas are used for hay and pasture.

This soil is poorly suited to cultivated crops because of the severe hazard of erosion and the slope. Cultivated crops should be grown only occasionally, and the maximum number of conservation practices should be used. Intercepting and diverting runoff and subsurface seepage, establishing sod waterways, farming on the contour, and minimizing tillage reduce wetness and the hazard of erosion. The content of organic matter has been depleted, as a result of past erosion, and the soil tends to become cloddy if it is plowed when wet. Incorporating crop residue into the soil, growing cover crops, and tilling when the soil is at the proper moisture content help to maintain tilth and increase the content of organic matter. The slope and the presence of gullies in some areas limit the use of farm machinery.

This soil is moderately well suited to hay and pasture. Overgrazing and grazing when the soil is wet restrict plant growth and can damage pasture plants. Erosion is a hazard in overgrazed areas. Using proper stocking rates, rotating livestock grazing, deferring grazing when the soil is wet, controlling weeds and brush, and selecting water-tolerant species for seeding are the main management concerns. Because the soil is naturally acid, applications of lime and fertilizer are needed to improve the growth of most pasture plants.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion is moderate and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand the seasonal wetness grow best. Building logging roads and skid trails on the contour helps to control erosion and minimizes gullying along the trails and roads.

The depth to saturated zone, slope, shrink-swell potential and the depth to bedrock are the main limitations if this soil is used as a site for dwellings with basements. The shale bedrock generally can be ripped with a backhoe. Where outlets are available, installing drains around footings, and sealing foundations and basement walls help to prevent excessive wetness in basements and reduce the shrink-swell potential. Land grading and building on the contour help to overcome the slope limitation.

The depth to saturated zone, frost action, slope, and shrink-swell potential are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems increase soil strength, and reduce the wetness and the potential for frost action. Land grading and building on the contour help to overcome the slope limitation.

The slope, depth to saturated zone, the restricted permeability, and the depth to bedrock are limitations if this soil is used as a site for septic tank absorption fields. The shale bedrock generally can be ripped with a backhoe. Care is needed to prevent the contamination of ground water resulting from seepage through the jointed and fractured bedrock. The absorption field should be installed in suitable fill material. Installing a drainage system in the area around the absorption field helps to overcome the seasonal wetness.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible. Recompacting this soil after it has been disturbed commonly is difficult because of the content of clay.

The capability subclass is 4e.

# 78F—Hornell and Hudson soils, 35 to 50 percent slopes

This unit consists of very steep, moderately deep, somewhat poorly drained Hornell soils and very deep, moderately well drained Hudson soils. It is on valley sides that commonly are dissected by V-shaped gullies. Some areas consist mostly of Hornell soils, some of mostly Hudson soils, and some of both. Overall, this unit consists of 40 percent Hornell soils, 35 percent Hudson soils, and 25 percent other soils. Individual areas are long and narrow, and range from 10 to 75 acres in size.

The typical sequence, depth, and composition of the layers of the Hornell soils are as follows—

Surface layer:

0 to 8 inches, dark grayish brown silt loam with 5 percent channers

Subsoil:

- 8 to 12 inches, light olive brown friable silty clay loam, with yellowish brown iron accumulations, and 5 percent channers
- 12 to 15 inches, light olive brown firm silty clay loam, with strong brown iron accumulations and grayish brown iron depletions, and 5 percent channers
- 15 to 28 inches, olive brown firm silty clay, with light olive gray iron depletions, and 5 percent channers

Substratum:

28 to 34 inches, grayish brown firm channery silty clay loam, with light olive brown iron accumulations and 25 percent channers

34 inches, soft shale bedrock

The typical sequence, depth, and composition of the layers of the Hudson soils are as follows—

Surface layer:

0 to 7 inches, dark grayish brown silt loam

Subsurface:

7 to 11 inches, pale brown, friable silt loam

Subsoil:

- 11 to 16 inches, dark yellowish brown firm silty clay loam, with yellowish brown iron accumulations
- 16 to 25 inches, brown firm silty clay, with yellowish brown iron accumulations and grayish brown iron depletions

25 to 38 inches, dark yellowish brown firm silty clay, with yellowish brown iron accumulations and grayish brown iron depletions

Substratum:

38 to 72 inches, brown firm silty clay with varves of silt and silty clay loam

Included in mapping are small areas of poorly drained soils along drainageways and in seepage spots, and small areas of Orpark soils which have less clay than the Hornell soil. Also included are small areas of Towerville soils which have less clay in the subsoil than Hornell soils, small areas of the moderately well drained Schuyler soils which are very deep over bedrock and have less clay in the subsoil than the Hornell soil, and small areas of soils that are similar to the Hornell soil but have bedrock at a depth of more than 40 inches. Included areas make up about 25 to 35 percent of this unit.

## Soil properties of the Hornell soils—

Permeability: Moderate in the surface layer, slow or very slow in the subsoil and substratum

Available water capacity: Low or moderate

Soil reaction: Extremely acid through strongly acid in the surface layer, and very

strongly or strongly acid in the subsoil and substratum

Water table: At a depth of 0.5 to 1.5 feet from November through May

Flooding hazard: None

Depth to bedrock: 20 to 40 inches

# Soil properties Hudson soils—

Permeability: Moderate or moderately slow in the surface and subsurface layers, slow or very slow in the subsoil and substratum

Available water capacity: High

Soil reaction: Strongly acid to neutral in the surface and subsurface layers, from moderately acid to slightly alkaline in the subsoil, and from neutral to moderately alkaline in the substratum

Water table: Perched at a depth of 1.3 to 2.0 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are wooded and provide wildlife habitat.

This soil is not suited to cultivated crops, hay or pasture. The slope and the very severe hazard of erosion are the main management concerns. The soil is too steep for the safe operation of farm machinery. A plant cover that controls runoff and erosion is essential.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion is very severe and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is high to low. The seasonal wetness in the Hornell soils increases seedling mortality. Tree species that can withstand the seasonal wetness grow best. Building logging roads and skid trails across the slope helps to control erosion and minimizes gullying along the roads and trails.

Construction is extremely difficult or impractical on this soil. The very steep slope and depth to bedrock are the main limitations if this soil is used as a site for dwellings with basements and septic tank absorption fields. Extensive land shaping may be necessary to overcome the slope limitation. Erosion is a very serious hazard on construction sites. A more suitable site for these uses should be selected on a less sloping included or nearby soil.

The very steep slopes, shrink-swell potential, depth to saturated zone, and frost action are the main limitations if this soil is used as a site for local roads and streets.

Constructing roads on the contour or locating them on less sloping inclusions or adjacent areas will help to overcome the slope limitation. Providing a coarse grained subgrade will improve bearing strength and reduce frost action.

Erosion is very severe on construction sites. In most areas the native plant cover should not be removed.

The capability subclass is 7e.

# 79B—Mongaup channery silt loam, 3 to 8 percent slopes

This soil is gently sloping, moderately deep, and well drained. It is on convex hilltops and side slopes in areas where the topography is influenced by the underlying bedrock. Sandstone and siltstone bedrock is at a depth of 20 to 40 inches. It occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are oblong, and range from 10 to 30 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 4 inches, very dark grayish brown channery silt loam with 20 percent channers

#### Subsoil:

4 to 8 inches, strong brown very friable channery silt loam, with 15 percent channers 8 to 16 inches, yellowish brown friable channery silt loam, with 20 percent channers 16 to 27 inches, brown friable channery silt loam, with 25 percent channers

#### Substratum.

27 inches, hard grayish sandstone and siltstone bedrock

Included in mapping are small areas of moderately well drained Ischua soils, well drained Franklinville soils where the bedrock is deeper than 40 inches below the surface, and Mongaup soils that do not have a channery silt loam surface layer. Also included are areas where the bedrock is within 20 inches of the surface. Included areas make up about 10 to 20 percent of this unit.

#### Soil properties—

Permeability: Moderate throughout the profile Available water capacity: Very low to moderate

Soil reaction: Extremely acid to strongly acid in the surface layer and upper part of the subsoil, and extremely acid to moderately acid in the lower part of the subsoil and substratum

Water table: At a depth of more than 6 feet

Flooding hazard: None

Depth to bedrock: 20 to 40 inches

Most areas are wooded, but some areas have been cleared and are used for row crops, alfalfa, hay or pasture. The row crops are grown in support of dairy farming. Small woodlots are in some areas, and some of the acreage is idle land that is reverting to shrubs. This soil meets the requirements for prime farmland.

This soil is well suited to most of the crops commonly grown in the county. The crops that are planted early in spring and deep-rooted perennial crops, such as alfalfa, grow especially well. The growing season is shorter on this soil than for nearby valley soils. The use of short-season or early maturing crop varieties is recommended. Lime is needed for most crops, especially legumes. Crops respond well to sufficient applications of lime and fertilizer. Erosion may be a hazard if the soil is intensively cultivated on long slopes, and is not protected by a plant cover. Incorporating crop residue into the soil, minimizing tillage, and growing cover crops help to maintain tilth and control erosion. Farming on the contour and stripcropping

help to control erosion and conserve water during the growing season. In some years droughtiness restricts crop growth.

This soil is well suited to hay and pasture. It is especially suitable for grazing early in the growing season. Overgrazing can restrict plant growth and increase the hazard of erosion. Deep-rooted legumes grow well, but applications of lime and fertilizer are required to maintain the quality of the stands and to ensure good plant growth. Using proper stocking rates, rotating livestock grazing, and controlling weeds and brush by mowing annually are the main management concerns.

The potential productivity of this soil for northern red oak is moderately high. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is moderate. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival.

The depth to bedrock is the main limitation if this soil is used as a site for dwellings with basements. Hard bedrock can make excavation difficult and costly. Blasting may be necessary.

Depth to bedrock and frost action are the main limitations if this soil is used as a site for local roads and streets. Careful planning in layout of roads and streets may help to overcome the depth to bedrock, and minimize excavation and blasting. Adding coarse textured subgrade or base material and installing roadside drainage systems help to overcome the limitation due to frost action.

Depth to bedrock is a limitation if this soil is used as a site for septic tank absorption fields. Hard bedrock can make excavation difficult and costly. Care is needed to prevent contamination of ground water resulting from seepage through the jointed and fractured bedrock. The absorption field should be installed in suitable fill material.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 2e.

# 79C—Mongaup channery silt loam, 8 to 15 percent slopes

This soil is strongly sloping, moderately deep, and well drained. It is on convex areas on hilltops that receive runoff from higher adjacent soils. It is in areas where the topography is influenced by the underlying bedrock. Sandstone and siltstone bedrock is at a depth of 20 to 40 inches. It occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are oblong or rectangular, and range from 10 to 75 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 4 inches, very dark grayish brown channery silt loam with 20 percent channers

### Subsoil:

4 to 8 inches, strong brown very friable channery silt loam, with 15 percent channers 8 to 16 inches, yellowish brown friable channery silt loam, with 20 percent channers 16 to 27 inches, brown friable channery silt loam, with 25 percent channers

#### Substratum:

27 inches, hard grayish sandstone and siltstone bedrock

Included in mapping are small areas of moderately well drained Ischua soils, well drained Franklinville soils where the bedrock is deeper than 40 inches below the surface, and Mongaup soils that do not have a channery silt loam surface layer. Also included are areas where the bedrock is within 20 inches of the surface. Included areas make up about 10 to 20 percent of this unit.

## Soil properties—

Permeability: Moderate throughout the profile Available water capacity: Very low to moderate

Soil reaction: Extremely acid to strongly acid in the surface layer and upper part of the subsoil, and extremely acid to moderately acid in the lower part of the subsoil and substratum

Water table: At a depth of more than 6 feet

Flooding hazard: None

Depth to bedrock: 20 to 40 inches

Most of the acreage is woodland, or is idle land that is reverting to shrubs. Some areas have been cleared and are used for row crops, alfalfa, hay or pasture, generally in support of dairy farming.

This soil is moderately well suited to most of the crops commonly grown in the county. The growing season is shorter on this soil than for nearby valley soils. The use of short-season or early maturing crop varieties is recommended. The crops that are planted early in spring and deep-rooted perennial crops, such as alfalfa, grow especially well. Erosion is a serious hazard in intensively cultivated areas. Contour farming and stripcropping in combination with diversions, terraces, or grassed waterways help to control erosion. Incorporating crop residue into the soil, minimizing tillage, including sod crops in the crop rotation, and growing cover crops help to maintain tilth and increase the content of organic matter. Crops respond well to applications of lime and fertilizer. Legumes respond especially well. In some years droughtiness restricts crop growth.

This soil is well suited to hay and pasture. It is especially suitable for grazing early in the growing season. Overgrazing can restrict plant growth and increase the hazard of erosion. Deep-rooted legumes grow well, but applications of lime and fertilizer are required to maintain the quality of stands and to ensure good plant growth. Using proper stocking rates, rotating livestock grazing, and controlling weeds and brush by mowing annually are the main management concerns.

The potential productivity of this soil for northern red oak is moderately high. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building skid trails and roads across the slope minimizes gullying along the trails and roads.

The depth to bedrock and slope are the main limitations if this soil is used as a site for dwellings with basements. Careful planning and design, extensive site preparation, and land shaping will help overcome the limitation due to slope. Excavation is difficult and costly. Blasting may be necessary. Careful site selection and planning can minimize the limitations due to bedrock.

Depth to bedrock, slope, and frost action are the main limitations if this soil is used as a site for local roads and streets. Careful planning in layout of roads and streets and land shaping may help to overcome the limitation due to depth to bedrock and slope. Adding coarse textured subgrade or base material and installing roadside drainage systems reduce the potential for frost action.

Depth to bedrock is a limitation if this soil is used as a site for septic tank absorption fields. Hard bedrock can make excavation difficult and costly. Care is needed to prevent the contamination of ground water resulting from seepage through the jointed and fractured bedrock. The absorption field should be installed in suitable fill material.

Erosion is a serious hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 3e.

# 79D—Mongaup channery silt loam, 15 to 25 percent slopes

This soil is moderately steep, moderately deep, and well drained. It is on uniformly sloping valley sides that receive runoff from higher adjacent soils. It is in areas where the topography is influenced by the underlying bedrock. Sandstone and siltstone bedrock is at a depth of 20 to 40 inches. It occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are oblong or rectangular, and range from 15 to 75 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 4 inches, very dark grayish brown channery silt loam with 20 percent channers

#### Subsoil:

4 to 8 inches, strong brown very friable channery silt loam, with 15 percent channers 8 to 16 inches, yellowish brown friable channery silt loam, with 20 percent channers 16 to 27 inches, brown friable channery silt loam, with 25 percent channers

#### Substratum:

27 inches, hard grayish sandstone and siltstone bedrock

Included in mapping are small areas of moderately well drained Ischua soils, well drained Franklinville soils where the bedrock is deeper than 40 inches below the surface, and Mongaup soils that do not have a channery silt loam surface layer. Also included are areas where the bedrock is within 20 inches of the surface. Included areas make up about 10 to 20 percent of this unit.

## Soil properties—

Permeability: Moderate throughout the profile Available water capacity: Very low to moderate

Soil reaction: Extremely acid to strongly acid in the surface layer and upper part of the subsoil, and extremely acid to moderately acid in the lower part of the subsoil and substratum

Water table: At a depth of more than 6 feet

Flooding hazard: None

Depth to bedrock: 20 to 40 inches

Most of the acreage is woodland, or is idle land that is reverting to brush. Some areas are used for hay or pasture. A small acreage is used for row crops.

This soil is poorly suited to cultivated crops because of the severe hazard of erosion and the moderately steep slope. The growing season is shorter on this soil than for nearby valley soils. Operating farm equipment is difficult and hazardous because of the slope. Erosion is a serious hazard in cultivated areas. Cultivated crops should be grown only occasionally, and the maximum number of conservation practices should be used. Minimizing tillage, growing cover crops, incorporating crop residue into the soil, tilling across the slope, stripcropping, and including sod crops in the cropping system help to maintain good tilth, increase the content of organic matter, and control erosion. Sufficient applications of lime and fertilizer are needed to maintain crop growth. In some years droughtiness restricts crop growth.

This soil is well suited to hay and pasture. It is especially suitable for grazing early in the growing season. Overgrazing can restrict plant growth and increase the hazard of erosion. Deep-rooted legumes grow well, but applications of lime and fertilizer are required to maintain the quality of the stands and to ensure good plant growth. If plowing is necessary to establish a plant cover, plowing across the slope and leaving strips of sod help to control runoff. Using proper stocking rates, rotating livestock

grazing, and controlling weeds and brush by mowing annually are the main management concerns.

The potential productivity of this soil for northern red oak is moderately high. The hazard of off-road or off-trail erosion is moderate and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building skid trails and roads across the slope minimizes gullying along the trails and roads.

The slope and depth to bedrock are the main limitations if this soil is used as a site for dwellings with basements. Extensive land shaping may be necessary to overcome the slope. Hard bedrock can make excavation difficult and costly. Blasting may be necessary.

Slope, depth to bedrock, and frost action are the main limitations if this soil is used as a site for local roads and streets. Careful planning in layout of roads and streets and land shaping may help to overcome depth to bedrock and slope. Adding coarse textured subgrade or base material and installing roadside drainage systems reduce the potential for frost action.

Depth to bedrock and slope are limitations if this soil is used as a site for septic tank absorption fields. Hard bedrock can make excavation difficult and costly. Care is needed to prevent the contamination of ground water resulting from seepage through the jointed and fractured bedrock. The absorption field should be installed in suitable fill material. Extensive engineering, design modifications and land shaping are necessary to overcome the limitations imposed by slope.

Erosion is a serious hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 4e.

# 79E—Mongaup channery silt loam, 25 to 35 percent slopes

This soil is steep, moderately deep, and well drained. It is on uniformly sloping valley sides that receive runoff from higher adjacent soils. It is in areas where the topography is influenced by the underlying bedrock. Sandstone and siltstone bedrock is at a depth of 20 to 40 inches. It occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are oblong or rectangular, and range from 15 to 75 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 4 inches, very dark grayish brown channery silt loam with 20 percent channers

#### Subsoil:

4 to 8 inches, strong brown very friable channery silt loam, with 15 percent channers 8 to 16 inches, yellowish brown friable channery silt loam, with 20 percent channers 16 to 27 inches, brown friable channery silt loam, with 25 percent channers

## Substratum:

27 inches, hard grayish sandstone and siltstone bedrock

Included in mapping are small areas of moderately well drained Ischua soils, well drained Franklinville soils where the bedrock is deeper than 40 inches below the surface, and Mongaup soils that do not have a channery silt loam surface layer. Also included are areas where the bedrock is within 20 inches of the surface. Included areas make up about 10 to 20 percent of this unit.

# Soil properties—

Permeability: Moderate throughout the profile Available water capacity: Very low to moderate

Soil reaction: Extremely acid to strongly acid in the surface layer and upper part of the subsoil, and extremely acid to moderately acid in the lower part of the subsoil and substratum

Water table: At a depth of more than 6 feet

Flooding hazard: None

Depth to bedrock: 20 to 40 inches

Most areas are wooded and provide wildlife habitat. Some of the less sloping included areas are idle or are used as pasture.

This soil is not suited to cultivated crops or hay because of the slope and the very severe hazard of erosion. Operating farm equipment is very difficult because of the slope. A plant cover that controls runoff and erosion is essential.

This soil is poorly suited to pasture. A good plant cover is needed. Prevention of overgrazing helps to protect the soil from erosion and gullying. Reseeding pastures is difficult because of the slope.

The potential productivity of this soil for northern red oak is moderately high. The hazard of off-road or off-trail erosion is moderate and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building skid trails and roads across the slope minimizes gullying along the trails and roads.

The slope and depth to bedrock are the main limitations if this soil is used as a site for dwellings with basements. Extensive land shaping may be necessary to overcome the slope. Hard bedrock can make excavation difficult and costly. Blasting may be necessary.

Slope, depth to bedrock, and frost action are the main limitations if this soil is used as a site for local roads and streets. Carefully planning the layout of roads and streets and land shaping may help to overcome depth to bedrock and slope. Adding coarse textured subgrade or base material and installing roadside drainage systems reduce the potential for frost action.

Depth to bedrock and slope are limitations if this soil is used as a site for septic tank absorption fields. Hard bedrock can make excavation difficult and costly. Care is needed to prevent the contamination of ground water resulting from seepage through the jointed and fractured bedrock. The absorption field should be installed in suitable fill material. Extensive engineering, design modifications, and land shaping are necessary to overcome the limitations imposed by slope.

Erosion is a serious hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 6e.

# 79F—Mongaup channery silt loam, 35 to 70 percent slopes

This soil is very steep, moderately deep, and well drained. It is on uniformly sloping valley sides that receive runoff from higher adjacent soils. It is in areas where the topography is influenced by the underlying bedrock. Sandstone and siltstone bedrock is at a depth of 20 to 40 inches. It occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are oblong or rectangular, and range from 15 to 75 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

## Surface layer:

0 to 4 inches, very dark grayish brown channery silt loam with 20 percent channers

#### Subsoil.

4 to 8 inches, strong brown very friable channery silt loam, with 15 percent channers 8 to 16 inches, yellowish brown friable channery silt loam, with 20 percent channers 16 to 27 inches, brown friable channery silt loam, with 25 percent channers

#### Substratum:

27 inches, hard grayish sandstone and siltstone bedrock

Included in mapping are small areas of moderately well drained Ischua soils, well drained Franklinville soils where the bedrock is deeper than 40 inches below the surface, and Mongaup soils that do not have a channery silt loam surface layer. Also included are areas where the bedrock is within 20 inches of the surface. Included areas make up about 10 to 20 percent of this unit.

## Soil properties—

Permeability: Moderate throughout the profile Available water capacity: Very low to moderate

Soil reaction: Extremely acid to strongly acid in the surface layer and upper part of the subsoil, and extremely acid to moderately acid in the lower part of the subsoil and substratum

Water table: At a depth of more than 6 feet

Flooding hazard: None

Depth to bedrock: 20 to 40 inches

Most areas are wooded and provide wildlife habitat.

This soil is not suited to cultivated crops, hay or pasture. The slope and the very severe hazard of erosion are the main management concerns. The soil is too steep for the safe operation of farm machinery. A plant cover that controls runoff and erosion is essential.

The potential productivity of this soil for northern red oak is moderately high. The hazard of off-road or off-trail erosion is very severe and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building logging roads and skid trails across the slope helps to control erosion and minimizes gullying along the trails and roads.

Construction is extremely difficult or impractical on this soil. The slope and the depth to bedrock are the main limitations if this soil is used as a site for dwellings with basements, local roads and streets, and septic tank absorption fields. Extensive land shaping may be necessary to overcome the slope. Hard bedrock can make excavation difficult and costly. Blasting may be necessary. Care is needed to prevent the contamination of ground water resulting from seepage through the jointed and fractured bedrock. Extensive engineering, design modifications and land shaping are necessary to overcome the limitations imposed by slope.

Erosion is a very serious hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible. In most areas the native plant cover should not be removed.

The capability subclass is 7e.

# 80A—Fremont silt loam, 0 to 3 percent slopes

This soil is nearly level, very deep, and somewhat poorly drained. It is on flat hilltops that receive little or no runoff and on upland benches that receive runoff from the higher adjacent soils. Individual areas are circular or irregularly shaped. They

commonly range from 5 to 50 acres in size, but some are as large as 100 acres or more.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 9 inches, dark grayish brown silt loam with 10 percent channers

## Subsoil:

9 to 16 inches, brown friable silt loam, with strong brown iron accumulations and gray iron depletions, and 10 percent channers

16 to 28 inches, olive brown firm silty clay loam, with yellowish brown iron accumulations and gray iron depletions, and 10 percent channers

28 to 39 inches, olive brown firm channery silty clay loam, with yellowish brown iron accumulations and gray iron depletions, and 15 percent channers

#### Substratum:

39 to 72 inches, dark grayish brown firm channery silt loam, with yellowish brown iron accumulations and gray iron depletions, and 20 percent channers

Included in mapping are small areas of the poorly drained Ashville soils in slight depressions and along drainageways, Volusia soils which have a fragipan, and Busti soils which have less clay in the subsoil than the Fremont soils. Also included are small areas of Orpark soils which have bedrock at a depth of 20 to 40 inches, and small areas of soils that have a channery surface layer. Included areas make up about 15 to 25 percent of this unit.

## Soil properties—

*Permeability:* Moderate in the surface layer, moderately slow or moderate in the subsoil, slow or very slow in the substratum

Available water capacity: Moderate or high

Soil reaction: Very strongly acid to moderately acid above a depth of 40 inches, and from strongly acid to neutral at depths below 40 inches

Water table: At a depth of 0.5 to 1.5 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are used for small grain, corn, or hay grown in support of dairy farming. Much of the acreage is idle land or is farmed at a low level of intensity. Where drained, this soil meets the requirements for prime farmland.

This soil is moderately well suited to cultivated crops. Unless a drainage system is installed, planting is delayed in spring, and the soil can be used only for short-season annual crops, hay, or pasture. Harvesting crops during prolonged wet periods in fall is more difficult on this soil than on the more sloping adjacent Fremont soils. The soil tends to become cloddy if plowed when wet. If a drainage system is installed, the soil is suited to the crops commonly grown in the county. Wetness can be reduced by providing closely spaced tile and open-ditch drainage systems. Maintaining good tilth is a management concern in intensively cultivated areas. Crops respond well to sufficient applications of lime and fertilizer. Incorporating crop residue into the soil, growing cover crops, and tilling only when the soil is at the proper moisture content, help to maintain tilth and the content of organic matter.

This soil is well suited to water-tolerant hay and late-spring pasture. Overgrazing and grazing when the soil is wet restrict plant growth and can damage the pasture plants. Grazing when the soil is wet also results in compaction and puddling. Plants respond well to applications of lime and fertilizer. Using proper stocking rates, rotating livestock grazing, deferring grazing when the soil is wet, controlling weeds and brush, and selecting water-tolerant species for seeding are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion and the hazard of erosion on roads and trails are slight. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand the seasonal wetness grow best.

The depth to saturated zone is the main limitation if this soil is used as a site for dwellings with basements. Where outlets are available, installing drains around footings reduces the wetness. Also, sealing foundations and basement walls helps to prevent excessive wetness in basements.

The depth to saturated zone and frost action are the main limitations if this soil is used as a site for local roads and streets. Installing roadside drainage systems and building on raised coarse textured fill material help to overcome these limitations.

The depth to saturated zone and the restricted permeability in the subsoil and substratum are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system in the area around the absorption field reduces the seasonal wetness, and adding permeable fill material helps to overcome the seasonal wetness and the restricted permeability.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 3w.

# 80B—Fremont silt loam, 3 to 8 percent slopes

This soil is gently sloping, very deep, and somewhat poorly drained. It is on broad hilltops and valley sides that receive a considerable amount of runoff from the higher adjacent soils. Individual areas are oblong or rectangular. They commonly are 5 to 75 acres in size, but range from 10 to several hundred acres.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 9 inches, dark grayish brown silt loam with 10 percent channers

Subsoil:

- 9 to 16 inches, brown friable silt loam, with strong brown iron accumulations and gray iron depletions, and 10 percent channers
- 16 to 28 inches, olive brown firm silty clay loam, with yellowish brown iron accumulations and gray iron depletions, and 10 percent channers
- 28 to 39 inches, olive brown firm channery silty clay loam, with yellowish brown iron accumulations and gray iron depletions, and 15 percent channers

Substratum:

39 to 72 inches, dark grayish brown firm channery silt loam, with yellowish brown iron accumulations and gray iron depletions, and 20 percent channers

Included in mapping are small areas of the poorly drained Ashville soils in slight depressions and along drainageways, Volusia soils which have a fragipan, and Busti soils which have less clay in the subsoil than the Fremont soils. Also included are small areas of Orpark soils which have bedrock at a depth of 20 to 40 inches, and small areas of soils that have a channery surface layer. Included areas make up about 15 to 25 percent of this unit.

## Soil properties—

Permeability: Moderate in the surface layer, moderately slow or moderate in the subsoil, slow or very slow in the substratum

Available water capacity: Moderate or high

Soil reaction: Very strongly acid to moderately acid above a depth of 40 inches, and from strongly acid to neutral at depths below 40 inches

Water table: At a depth of 0.5 to 1.5 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Some areas are used for small grain, corn, or hay grown in support of dairy farming. A large area is idle land or is farmed at a low level of intensity. Some areas are wooded.

This soil is moderately well suited to cultivated crops. Unless a drainage system is installed, planting is delayed in spring, and the soil can be used only for short-season annual crops, hay, or pasture. Harvesting crops during prolonged wet periods in fall is difficult. The soil tends to become cloddy if plowed when wet. Interceptor drains can divert runoff from the higher adjacent soils, and tile and open-ditch drainage systems can remove excess water. Tile drains generally should be closely spaced because of the restricted permeability in the subsoil. Erosion can be controlled by stripcropping, farming on the contour, growing cover crops, and minimizing tillage. If drained and protected from erosion, this soil is suited to the crops commonly grown in the county. Incorporating crop residue into the soil, growing cover crops, and tilling only when the soil is at the proper moisture content help to maintain tilth and the content of organic matter. Crops respond well to sufficient applications of lime and fertilizer.

This soil is well suited to water-tolerant hay and late-spring pasture. Overgrazing and grazing when the soil is wet restrict plant growth and can damage the pasture plants. Grazing when the soil is wet can cause surface compaction, restrict plant growth, deplete the stand of pasture grasses, and increase the hazard of erosion. Plants respond well to applications of lime and fertilizer. Using proper stocking rates, rotating livestock grazing, deferring grazing when the soil is wet, controlling weeds and brush, and selecting water-tolerant species for seeding are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is moderate. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand the seasonal wetness grow best.

The depth to saturated zone is the main limitation if this soil is used as a site for dwellings with basements. Where outlets are available, installing drains around footings reduces the wetness. Also, sealing foundations and basement walls helps to prevent excessive wetness in basements.

The depth to saturated zone and frost action are the main limitations if this soil is used as a site for local roads and streets. Installing roadside drainage systems and building on raised coarse textured fill material help to overcome these limitations.

The depth to saturated zone and the restricted permeability in the subsoil and substratum are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system in the area around the absorption field reduces the seasonal wetness, and adding permeable fill material helps to overcome the seasonal wetness and the restricted permeability.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 3w.

# 80C—Fremont silt loam, 8 to 15 percent slopes

This soil is strongly sloping, very deep, and somewhat poorly drained. It is on hillsides and valley sides that receive a considerable amount of runoff from the higher

adjacent soils. Individual areas are oblong or rectangular, and commonly are from 10 to 75 acres in size, but range from 10 to several hundred acres.

The typical sequence, depth, and composition of the layers of this soil are as follows-

Surface layer:

0 to 9 inches, dark grayish brown silt loam with 10 percent channers

### Subsoil:

9 to 16 inches, brown friable silt loam, with strong brown iron accumulations and gray iron depletions, and 10 percent channers

16 to 28 inches, olive brown firm silty clay loam, with yellowish brown iron accumulations and gray iron depletions, and 10 percent channers

28 to 39 inches, olive brown firm channery silty clay loam, with yellowish brown iron accumulations and gray iron depletions, and 15 percent channers

#### Substratum:

39 to 72 inches, dark grayish brown firm channery silt loam, with yellowish brown iron accumulations and gray iron depletions, and 20 percent channers

Included in mapping are small areas of the poorly drained Ashville soils in slight depressions and along drainageways, Volusia soils which have a fragipan, and Busti soils which have less clay in the subsoil than the Fremont soils. Also included are small areas of Orpark soils which have bedrock at a depth of 20 to 40 inches, and small areas of soils that have a channery surface layer. Included areas make up about 15 to 25 percent of this unit.

#### Soil properties—

Permeability: Moderate in the surface layer, moderately slow or moderate in the subsoil, slow or very slow in the substratum

Available water capacity: Moderate or high

Soil reaction: Very strongly acid to moderately acid above a depth of 40 inches, and from strongly acid to neutral at depths below 40 inches

Water table: At a depth of 0.5 to 1.5 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Some areas are farmed at a low level of intensity. These areas are used for small grain, corn, or hay grown in support of dairy farming. A large acreage is woodland or is idle land that is reverting to woodland.

This soil is moderately well suited to cultivated crops. Unless a drainage system is installed, planting is delayed in spring, and the soil can be used only for short-season annual crops, hay, or pasture. Harvesting crops during prolonged wet periods in fall is difficult. The soil tends to become cloddy if plowed when wet. If drained and protected from erosion, it is suited to the crops commonly grown in the county. Interceptor drains can divert runoff from the higher adjacent soils, and tile and open-ditch drainage systems can remove excess water. Tile drains generally should be closely spaced because of the restricted permeability in the subsoil and substratum. Erosion can be controlled by stripcropping, farming on the contour, growing cover crops, and minimizing tillage. Incorporating crop residue into the soil and tilling only when the soil is at the proper moisture content improve tilth and help to maintain the content of organic matter. Crops respond well to sufficient applications of lime and fertilizer.

This soil is well suited to water-tolerant hay and late-spring pasture. Overgrazing and grazing when the soil is wet are the main concerns in managing pasture. Grazing when the soil is wet causes surface compaction, restricts plant growth, and can deplete the stand of pasture grasses, thus resulting in serious erosion. Plants respond well to applications of lime and fertilizer. Using proper stocking rates, rotating

livestock grazing, deferring grazing when the soil is wet, controlling weeds and brush, and selecting water-tolerant species for seeding are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand the seasonal wetness grow best. Building logging roads and skid trails on the contour helps control erosion and minimizes gullying along the trails.

The depth to saturated zone and slope are the main limitations if this soil is used as a site for dwellings with basements. Where outlets are available, installing drains around footings reduces the wetness. Also, sealing foundations and basement walls helps to prevent excessive wetness in basements. Land grading and building on the contour help to overcome the slope limitation.

The depth to saturated zone, frost action, and slope are the main limitations if this soil is used as a site for local roads and streets. Installing roadside drainage systems and building on raised coarse textured fill material help to overcome these limitations. Land grading and building on the contour help to overcome the slope limitation.

The depth to saturated zone and the restricted permeability in the subsoil and substratum are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system in the area around the absorption field reduces the seasonal wetness, and adding permeable fill material helps to overcome the seasonal wetness and the restricted permeability.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 3e.

# 81B—Varysburg gravelly silt loam, 3 to 8 percent slopes

This soil is gently sloping, very deep, and moderately well drained. It is on outwash plains, and on undulating terraces along lower valley sides. Individual areas are elongated or irregularly shaped. They commonly range from 5 to 50 acres in size, but some are as large as several hundred acres.

The typical sequence, depth, and composition of the layers of this soil are as follows— Surface layer:

0 to 5 inches, dark grayish brown gravelly silt loam with 15 percent gravel

# Subsurface layer:

5 to 13 inches, yellowish brown friable gravelly loam with 20 percent gravel

#### Subsoil:

- 13 to 22 inches, strong brown friable gravelly silt loam, with 30 percent gravel
- 22 to 28 inches, yellowish brown friable very gravelly loam, with brown and strong brown iron accumulations, and 35 percent gravel
- 28 to 33 inches, brown friable very gravelly loam, with 50 percent gravel
- 33 to 48 inches, olive brown firm silty clay loam, with brown iron accumulations, and up to 2 percent gravel

#### Substratum:

48 to 72 inches, olive brown firm silty clay, with varved silt and clay

Included in mapping are small areas of poorly drained soils in slight depressions, along drainageways and in seepage spots, and soils that have a silt loam surface layer. Also included are small areas of Chenango, Hudson and Valois soils. Chenango soils are a common inclusion on higher rises and knolls with the clayey deposits at a depth of more than 60 inches; the Hudson soils do not have a gravelly surface mantle;

and the Valois soils do not have the underlying clay deposits. Included areas make up about 10 to 20 percent of this unit.

### Soil properties—

Permeability: Moderate or moderately rapid in the gravelly mantle, and very slow in the clayey lacustrine material

Available water capacity: Low or moderate

Soil reaction: Strongly acid or moderately acid in the surface layer to upper part of the subsoil, and slightly acid to moderately alkaline in the lower part of the subsoil and substratum

Water table: At a depth 1.5 to 2.8 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are used for cultivated crops. Scattered woodlots are in a few areas. This soil meets the requirements for prime farmland.

This soil is well suited to all cultivated crops commonly grown in the county. Seasonal wetness in the early spring and fall may delay tillage and harvesting activities. It can be used intensively for row crops, though erosion may be a hazard on long slopes and the more sloping parts of this unit. Incorporating crop residue into the soil, minimizing tillage, and growing cover crops help to maintain tilth and control erosion. Small rock fragments on the surface may be a limitation. The rock fragments may interfere with the planting of some fine-seeded crops, and can increase the wear on machinery. Deep-rooted perennial crops, such as alfalfa, grow especially well. Crops respond well to sufficient applications of lime and fertilizer. Minimizing tillage, growing cover crops, incorporating crop residue into the soil, and rotating crops improve tilth, reduce erosion, and help to maintain the content of organic matter. Increasing the content of organic matter improves the available water capacity of the soil.

This soil is well suited to hay and pasture. It is especially suitable for grazing early in the growing season. Using proper stocking rates, rotating livestock grazing, controlling weeds and brush, and applying the proper kinds and amounts of lime and fertilizer are the main management concerns.

The potential productivity of this soil for sugar maple is moderately high. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is moderate. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival.

Depth to saturated zone and shrink-swell potential are main limitations if this soil is used as a site for dwellings with basements. If suitable outlets can be found, installing drainage tile along the footings of the foundation, and sealing the foundation walls can help overcome these limitations.

Frost action and depth to saturated zone are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material, and installing roadside drainage systems reduce the wetness and the potential for frost action.

The depth to saturated zone and restricted permeability in the clayey subsoil and substratum are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system in the area around the absorption field reduces the seasonal wetness, and adding permeable fill material helps overcome the restricted permeability. Excavations are subject to slipping or slumping, particularly when the soil is wet.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 2w.

# 81C—Varysburg gravelly silt loam, 8 to 15 percent slopes

This soil is strongly sloping, very deep, and moderately well drained. It is on dissected outwash plains, and on undulating terraces along lower valley sides. Individual areas are elongated or irregularly shaped. They commonly range from 5 to 40 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 5 inches, dark grayish brown gravelly silt loam with 15 percent gravel

Subsurface layer:

5 to 13 inches, yellowish brown friable gravelly loam with 20 percent gravel

Subsoil:

13 to 22 inches, strong brown friable gravelly silt loam, with 30 percent gravel

22 to 28 inches, yellowish brown friable very gravelly loam, with brown and strong brown iron accumulations, and 35 percent gravel

28 to 33 inches, brown friable very gravelly loam, with 50 percent gravel

33 to 48 inches, olive brown firm silty clay loam, with brown iron accumulations, and up to 2 percent gravel

Substratum:

48 to 72 inches, olive brown firm silty clay, with varved silt and clay

Included in mapping are small areas of poorly drained soils in slight depressions, along drainageways and in seepage spots, and soils that have a silt loam surface layer. Also included are small areas of Chenango, Hudson and Valois soils. Chenango soils are a common inclusion on higher rises and knolls with the clayey deposits at a depth of more than 60 inches; the Hudson soils do not have a gravelly surface mantle; and the Valois soils do not have the underlying clay deposits. Included areas make up about 10 to 20 percent of this unit.

#### Soil properties—

Permeability: Moderate or moderately rapid in the gravelly mantle, and very slow in the clayey lacustrine material

Available water capacity: Low or moderate

Soil reaction: Strongly acid or moderately acid in the surface layer to upper part of the subsoil, and slightly acid to moderately alkaline in the lower part of the subsoil and substratum

Water table: At a depth of 1.5 to 2.8 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are used for cultivated crops. Scattered woodlots are in a few areas, and some of the acreage is idle land.

This soil is moderately well suited to most of the crops commonly grown in the county. The slope, erosion, droughtiness, and gravel on the surface are the main limitations. The gravel may interfere with the planting of some crops and cause excessive wear on machinery. Erosion is serious hazard on long slopes and in intensively cultivated areas. Farming on the contour, stripcropping, and establishing grassed waterways help to control erosion. Incorporating crop residue into the soil, minimizing tillage, growing cover crops, and including sod crops in the cropping sequence help to maintain tilth and reduce the hazard of erosion. These practices also increase the content of organic matter, and thus improve the available water capacity of the soil. Deep-rooted perennial crops, such as alfalfa, grow especially

well. Crops respond well to applications of lime and fertilizer. In some years droughtiness restricts crop growth.

This soil is well suited to hay and pasture. It is especially suitable for grazing early in the growing season. Overgrazing can restrict plant growth, especially during long dry periods, and can increase the hazard of erosion. Using proper stocking rates, rotating livestock grazing, and controlling weeds and brush by mowing annually are important management concerns.

The potential productivity of this soil for sugar maple is moderately high. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building logging roads and skid trails on the contour helps control erosion and minimizes gullying along the trails.

Depth to saturated zone, slope, and shrink-swell potential are main limitations if this soil is used as a site for dwellings with basements. If suitable outlets can be found, installing drainage tile along the footings of the foundation, and sealing the foundation walls can help overcome these limitations. Land grading and shaping help to overcome the slope limitation.

Frost action, slope, and depth to saturated zone are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material, and installing roadside drainage systems reduce the wetness and the potential for frost action. Land grading and shaping help to overcome the slope limitation.

The depth to saturated zone and restricted permeability in the clayey subsoil and substratum are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system in the area around the absorption field reduces the seasonal wetness, and adding permeable fill material helps overcome the restricted permeability. Excavations are subject to slipping or slumping, particularly when the soil is wet.

Erosion is a hazard on construction sites. Excavations in toeslopes can cause massive slips or slumps, particularly when the soil is wet. Reseeding disturbed areas as soon as possible helps prevent erosion and reduces the hazard of slides or slumps. Interceptor drains may be needed to divert excess water from potential slump or slide areas.

The capability subclass is 3e.

# 81D—Varysburg gravelly silt loam, 15 to 25 percent slopes

This soil is moderately steep, very deep, and moderately well drained. It is on dissected outwash plains, and on hilly outwash plains on terrace fronts. Individual areas are elongated or irregularly shaped. They commonly range from 5 to 35 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface laver:

0 to 5 inches, dark grayish brown gravelly silt loam with 15 percent gravel

Subsurface layer:

5 to 13 inches, yellowish brown friable gravelly loam with 20 percent gravel

Subsoil

13 to 22 inches, strong brown friable gravelly silt loam, with 30 percent gravel 22 to 28 inches, yellowish brown friable very gravelly loam, with brown and strong brown iron accumulations, and 35 percent gravel 28 to 33 inches, brown friable very gravelly loam, with 50 percent gravel 33 to 48 inches, olive brown firm silty clay loam, with brown iron accumulations, and up to 2 percent gravel

Substratum:

48 to 72 inches, olive brown firm silty clay, with varved silt and clay

Included in mapping are small areas of poorly drained soils in slight depressions, along drainageways and in seepage spots, and soils that have a silt loam surface layer. Also included are small areas of Chenango, Hudson, and Valois soils. Chenango soils are a common inclusion on higher rises and knolls with the clayey deposits at a depth of more than 60 inches; the Hudson soils do not have a gravelly surface mantle; and the Valois soils do not have the underlying clay deposits. Included areas make up about 10 to 20 percent of this unit.

### Soil properties—

Permeability: Moderate or moderately rapid in the gravelly mantle, and very slow in the clayey lacustrine material

Available water capacity: Low or moderate

Soil reaction: Strongly acid or moderately acid in the surface layer to upper part of the subsoil, and slightly acid to moderately alkaline in the lower part of the subsoil and substratum

Water table: At a depth of 1.5 to 2.8 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most of the acreage is woodland, or is idle land that is reverting to brush. Some areas are used for hay, pasture or row crops.

This soil is poorly suited to cultivated crops. The slope, the hazard of erosion, and droughtiness are the main management concerns. Operating farm equipment is difficult and hazardous because of the slope. Erosion is a serious hazard in cultivated areas. Cultivated crops should be grown only occasionally, and the maximum number of conservation practices should be used. Minimizing tillage, growing cover crops, incorporating crop residue into the soil, tilling across the slope, stripcropping, and including sod crops in the cropping system help to maintain good tilth, increase the content of organic matter, and minimize erosion. Sufficient applications of lime and fertilizer are needed to maintain crop growth. In some years droughtiness restricts crop growth.

This soil is moderately well suited to hay and pasture. It is especially suitable for grazing early in the growing season. Overgrazing can restrict plant growth, and can increase the hazard of erosion. Deep-rooted legumes can be grown, but applications of lime and fertilizer are required to maintain the quality of stands, and to ensure good plant growth. If plowing is necessary to establish a plant cover, plowing across the slope and leaving strips of sod help to control runoff. Using proper stocking rates, rotating livestock grazing, and controlling weeds and brush by mowing annually are important management concerns.

The potential productivity of this soil for sugar maple is moderately high. The hazard of off-road or off-trail erosion is moderate and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building logging roads and skid trails on the contour helps control erosion and minimizes gullying along the trails.

Depth to saturated zone, slope, and shrink-swell potential are the main limitations if this soil is used as a site for dwellings with basements. If suitable outlets can be found, installing drainage tile along the footings of the foundation, and sealing the

foundation walls can help overcome these limitations. Land grading and shaping help to overcome the slope limitation.

Slope, frost action, and depth to saturated zone are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems reduce the wetness and the potential for frost action. Land grading and shaping help to overcome the slope limitation.

The depth to saturated zone, slope, and restricted permeability in the clayey subsoil and substratum are limitations if this soil is used as a site for septic tank absorption fields. Installing a drainage system in the area around the absorption field helps to overcome the seasonal wetness. Extensive land modification is needed to overcome the slope limitations. Excavations are subject to slipping or slumping, particularly when the soil is wet. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Adding permeable fill material helps overcome the restricted permeability.

Erosion is a hazard on construction sites. Excavations in toeslopes can cause massive slips or slumps, particularly when the soil is wet. Reseeding disturbed areas as soon as possible helps prevent erosion and reduces the hazard of slides or slumps. Interceptor drains may be needed to divert excess water from potential slump or slide areas.

The capability subclass is 4e.

# 81E—Varysburg gravelly silt loam, 25 to 35 percent slopes

This soil is steep, very deep, and moderately well drained. It is on dissected outwash plains, and on terrace fronts. Individual areas are elongated or irregularly shaped. They commonly range from 5 to 45 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 5 inches, dark grayish brown gravelly silt loam with 15 percent gravel

Subsurface layer:

5 to 13 inches, yellowish brown friable gravelly loam with 20 percent gravel

Subsoil:

13 to 22 inches, strong brown friable gravelly silt loam, with 30 percent gravel

22 to 28 inches, yellowish brown friable very gravelly loam, with brown and strong brown iron accumulations, and 35 percent gravel

28 to 33 inches, brown friable very gravelly loam, with 50 percent gravel

33 to 48 inches, olive brown firm silty clay loam, with brown iron accumulations, and up to 2 percent gravel

Substratum:

48 to 72 inches, olive brown firm silty clay, with varved silt and clay

Included in mapping are small areas of poorly drained soils in slight depressions, along drainageways and in seepage spots, and soils that have a silt loam surface layer. Also included are small areas of Chenango, Hudson and Valois soils. Chenango soils are a common inclusion on higher rises and knolls with the clayey deposits at a depth of more than 60 inches; the Hudson soils do not have a gravelly surface mantle; and the Valois soils do not have the underlying clay deposits. Included areas make up about 10 to 20 percent of this unit.

### Soil properties—

Permeability: Moderate or moderately rapid in the gravelly mantle, and very slow in the clayey lacustrine material

Available water capacity: Low or moderate

Soil reaction: Strongly acid or moderately acid in the surface layer to upper part of the subsoil, and slightly acid to moderately alkaline in the lower part of the subsoil and substratum

Water table: At a depth of 1.5 to 2.8 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are used as woodland and wildlife habitat. Some of the acreage is idle land, or is used as pasture.

This soil is not suited to cultivated crops or hay because of the steep slope and the very severe hazard of erosion. Operating farm equipment is very difficult and hazardous because of the slope. A plant cover is needed to control runoff.

The suitability of this soil for pasture is limited. A good plant cover is needed. Prevention of overgrazing helps to protect the soil from erosion and gullying.

The potential productivity of this soil for sugar maple is moderately high. The hazard of off-road or off-trail erosion is moderate and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building logging roads and skid trails on the contour helps control erosion and minimizes gullying along the trails.

Depth to saturated zone, slope, and shrink-swell potential are the main limitations if this soil is used as a site for dwellings with basements. If suitable outlets can be found, installing drainage tile along the footings of the foundation, and sealing the foundation walls can help overcome these limitations. Land grading and shaping help to overcome the slope limitation. Designing the dwellings so that they conform to the natural slope of the land reduces the amount of grading required.

Slope, frost action, and depth to saturated zone are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material, and installing roadside drainage systems reduce the wetness and the potential for frost action. Extensive land grading and shaping help to overcome the slope limitation.

The depth to saturated zone, slope, and restricted permeability in the clayey subsoil and substratum are limitations if this soil is used as a site for septic tank absorption fields. Installing a drainage system in the area around the absorption field helps to overcome the seasonal wetness. Excavations are subject to slipping or slumping, particularly when the soil is wet. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Extensive land modification is needed to overcome the slope limitations. Less sloping areas should be considered for this use.

Erosion is a hazard on construction sites. Excavations in toeslopes can cause massive slips or slumps, particularly when the soil is wet. Reseeding disturbed areas as soon as possible helps prevent erosion and reduces the hazard of slides or slumps. Interceptor drains may be needed to divert excess water from potential slump or slide areas.

The capability subclass is 6e.

# 82F—Rock outcrop-Manlius complex, 35 to 70 percent slopes

This unit consists of rock ledges and a very steep, moderately deep, well drained Manlius soil on the nearly perpendicular walls of gorges. The height of the walls, or the depth of most of gorges, ranges from 50 to more than 200 feet. Most areas occur

as elongated, narrow strips. They commonly range from 20 to 75 acres in size, but some are as large as 200 acres or more.

Rock outcrop makes up 50 percent of the unit; Manlius soil makes up 30 percent. The Rock outcrop and Manlius soil occur in such an intricate pattern that it was not practical to separate them at the scale used in mapping.

The typical sequence, depth, and composition of the layers of the Manlius soil are as follows—

Surface layer:

0 to 4 inches, dark grayish brown channery silt loam with 20 percent channers

Subsoil:

4 to 12 inches, brown friable channery silt loam, with 30 percent channers 12 to 23 inches, yellowish brown friable very channery silt loam, with 40 percent channers

Substratum:

23 to 34 inches, brown friable very channery silt loam, with 50 percent channers 34 inches, very dark grayish brown shale bedrock

Included in mapping are small areas of soils that have bedrock at a depth of less than 20 inches or more than 40 inches. Also included are small areas of moderately well drained Towerville soils, and small narrow areas of Udifluvents and Fluvaquents on the flood plains along the streams that dissect this unit. Included areas make up about 20 percent of this unit.

### Soil properties—

Permeability: Moderate or moderately rapid throughout the profile

Available water capacity: Very low to moderate

Soil reaction: Extremely acid through moderately acid in the surface layer and subsoil, and very strongly acid through slightly acid in the substratum

Water table: At a depth greater than 6 feet

Depth to bedrock: 20 to 40 inches

All areas of this unit, except for those on exposed rock walls, support natural vegetation consisting of trees and brush. Some small trees and brush grow in the crevices of the rocks.

This unit has no potential for farming or urban uses because of the exposed bedrock and very steep slopes. The gorges have aesthetic value and can be used as scenic overlooks. Some areas are excellent sites for viewing geologic strata. Scattered stands of timber grow in some areas, but managing the stands is impractical because of the slope.

The capability subclass is 7s.

# 84B—Elko silt loam, 3 to 8 percent slopes

This soil is gently sloping, very deep, and moderately well drained. It is on convex areas of hilltops that receive little or no runoff from higher adjacent soils. It occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are oblong, and range from 10 to 50 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 3 inches, very dark gray silt loam with 10 percent channers

Subsurface:

3 to 6 inches, grayish brown very friable loam, with 10 percent channers

#### Subsoil:

6 to 19 inches, strong brown very friable channery silt loam, with 15 percent channers 19 to 26 inches, yellowish brown friable channery loam, with strong brown and pale brown iron accumulations and light brownish gray iron depletions, and 15 percent channers

- 26 to 42 inches, yellowish brown very firm channery silt loam, with strong brown and pale brown iron accumulations and light brownish gray iron depletions, and 30 percent channers
- 42 to 64 inches, brown very firm very channery loam, with strong brown iron accumulations and light brownish gray iron depletions, and 35 percent channers

#### Substratum:

64 to 72 inches, yellowish brown firm extremely channery loam, with strong brown iron accumulations and gray iron depletions, and 60 percent channers

Included in mapping are small areas of somewhat poorly drained soils along drainageways and in seepage spots, and other somewhat poorly drained soils which do not have a fragipan. Also included are small areas of Carrollton, Eldred, and Onoville soils; Carrollton soils have bedrock within 40 inches, Onoville soils occur on colluvial side slopes, and Eldred soils lack the fragipan in the subsoil. Included areas make up about 10 to 20 percent of the unit.

### Soil properties—

Permeability: Moderate above the fragipan, slow or moderately slow in the fragipan and substratum

Available water capacity: Low or moderate

Soil reaction: Extremely acid through strongly acid

throughout the profile

Water table: Perched at a depth of 1.2 to 2.0 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most of the acreage of this soil is in woodland. Some areas are cultivated, or are in hay or pasture.

This soil is well suited to cultivated crops, but the growing season is shorter for this soil than for nearby valley soils at lower elevations. The use of short-season or early maturing crop varieties is recommended. Draining the wetter included soils by random tile drains allows for earlier planting and more uniform management of the fields. Sufficient applications of lime are needed if legumes are to be established. Erosion is a hazard on long slopes in intensively cultivated areas. Farming on the contour, stripcropping, growing cover crops, and establishing diversions that break up long slopes help to control runoff and erosion. Minimizing tillage, growing cover crops, incorporating crop residue into the soil, and mulching increase the rate of water infiltration during the growing season and help to maintain tilth.

This soil is well suited to pasture. Overgrazing and grazing when the soil is wet are the main concerns in managing pasture. The soil becomes compacted if the pasture is grazed during wet periods. Overgrazing and surface compaction restrict plant growth, damage pasture plants, and increase the rate of runoff. Applying a sufficient amount of lime and fertilizer, using proper stocking rates, rotating livestock grazing, and controlling weeds and brush are the main management concerns.

The potential productivity of this soil for northern red oak is moderately high. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is moderate. The potential for seedling mortality is low. Planting seedlings in spring, when the soil is moist, helps to ensure their survival.

The depth to saturated zone and shrink-swell potential are the main limitations if this soil is used as a site for dwellings with basements. Installing drains around

footings, and sealing foundations and basement walls will help to prevent excessive wetness in basements. Installing interceptor drains and diversion ditches in upslope areas diverts surface and subsurface water from the dwellings.

Depth to saturated zone, frost action, and shrink-swell potential are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems help to overcome these limitations.

The depth to saturated zone, depth to dense material, and restricted permeability are limitations if this soil is used as a site for tank absorption fields. Extensive engineering and design modifications are needed if onsite septic tank absorption fields are installed. Installing a drainage system in the area around the absorption field, and adding permeable fill material help overcome seasonal wetness and the restricted permeability.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 2e.

# 84C—Elko silt loam, 8 to 15 percent slopes

This soil is strongly sloping, very deep, and moderately well drained. It is on convex areas of hilltops and upper side slopes that receive little or no runoff from higher adjacent soils. It occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are oblong, and range from 10 to 45 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 3 inches, very dark gray silt loam with 10 percent channers

Subsurface:

3 to 6 inches, grayish brown very friable loam, with 10 percent channers

Subsoil:

- 6 to 19 inches, strong brown very friable channery silt loam, with 15 percent channers 19 to 26 inches, yellowish brown friable channery loam, with strong brown and pale brown iron accumulations and light brownish gray iron depletions, and 15 percent channers
- 26 to 42 inches, yellowish brown very firm channery silt loam, with strong brown and pale brown iron accumulations and light brownish gray iron depletions, and 30 percent channers
- 42 to 64 inches, brown very firm very channery loam, with strong brown iron accumulations and light brownish gray iron depletions, and 35 percent channers

Substratum:

64 to 72 inches, yellowish brown firm extremely channery loam, with strong brown iron accumulations and gray iron depletions, and 60 percent channers

Included in mapping are small areas of somewhat poorly drained soils along drainageways and in seepage spots, and other somewhat poorly drained soils which do not have a fragipan. Also included are small areas of Carrollton, Eldred, and Onoville soils; Carrollton soils have bedrock within 40 inches, Onoville soils occur on colluvial side slopes, and Eldred soils lack the fragipan in the subsoil. Included areas make up about 10 to 20 percent of the unit.

# Soil properties—

Permeability: Moderate above the fragipan, slow or moderately slow in the fragipan

and substratum

Available water capacity: Low or moderate

Soil reaction: Extremely acid through strongly acid

throughout the profile

Water table: Perched at a depth of 1.2 to 2.0 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most of the acreage of this soil is in woodland. Some areas are cultivated, or are in hay or pasture.

This soil is moderately well suited to cultivated crops. The growing season is shorter for this soil than for nearby valley soils at lower elevations. The use of short-season or early maturing crop varieties is recommended. Draining the wetter included soils by random tile drains allows for earlier planting and more uniform management of the fields. Sufficient applications of lime are needed if legumes are to be established. Erosion is a hazard in intensively cultivated areas. Farming on the contour, stripcropping, growing cover crops, and establishing diversions that break up long slopes help to control runoff and erosion. Minimizing tillage, growing cover crops, incorporating crop residue into the soil, and mulching increase the rate of water infiltration during the growing season and help to maintain tilth.

This soil is well suited to pasture. Overgrazing and grazing when the soil is wet are the main concerns in managing pasture. The soil becomes compacted if the pasture is grazed during wet periods. Overgrazing and surface compaction restrict plant growth, damage pasture plants, and increase the rate of runoff. Applying a sufficient amount of lime and fertilizer, using proper stocking rates, rotating livestock grazing, and controlling weeds and brush are the main management concerns.

The potential productivity of this soil for northern red oak is moderately high. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building logging roads and skid trails on the contour helps control erosion and minimizes gullying along the trails.

The depth to saturated zone, slope, and shrink-swell potential are the main limitations if this soil is used as a site for dwellings with basements. Installing drains around footings, and sealing foundations and basement walls will help to prevent excessive wetness in basements. Installing interceptor drains and diversion ditches in upslope areas diverts surface and subsurface water from the dwellings. Land grading and building on the contour help to overcome the slope limitation.

Depth to saturated zone, frost action, slope, and shrink-swell potential are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material, and installing roadside drainage systems help to overcome these limitations. Land grading and building on the contour help to overcome the slope limitation.

The depth to saturated zone, depth to dense material, and restricted permeability are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if septic tank absorption fields are installed. Installing a drainage system in the area around the absorption field, and adding permeable fill material help overcome the seasonal wetness and the restricted permeability.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 3e.

# 85B—Onoville silt loam, 3 to 8 percent slopes

This soil is gently sloping, very deep, and moderately well drained. It is on hillsides and lower colluvial side slopes that receive runoff from the higher adjacent soils. It occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are oblong, and range from 10 to 50 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 8 inches, dark grayish brown silt loam with 5 percent channers

#### Subsoil:

- 8 to 16 inches, yellowish brown friable silt loam, with strong brown iron accumulations and light brownish gray iron depletions, 5 percent channers
- 16 to 22 inches, brown friable silty clay loam, with strong brown iron accumulations and light brownish gray iron depletions, and 10 percent channers
- 22 to 32 inches, yellowish brown firm channery loam, with strong brown iron accumulations and light gray iron depletions, and 20 percent channers
- 32 to 59 inches, yellowish brown very firm channery clay loam, with strong brown iron accumulations and gray iron depletions, and 25 percent channers
- 59 to 65 inches, yellowish brown firm channery silty clay loam, with light gray iron depletions, and 20 percent channers

#### Substratum:

65 to 72 inches, variegated dark grayish brown and yellowish brown firm channery clay loam, with pinkish gray iron depletions, and 20 percent channers

Included in mapping are small areas of the somewhat poorly drained Shongo soils along drainageways and in seepage spots, and other somewhat poorly drained soils which do not have a fragipan. Also included are small areas of well drained Kinzua soils on slight rises and knolls; Eldred soils which lack the fragipan; and Onoville soils that have more channers in the surface layer. Included areas make up about 15 to 20 percent of the unit.

#### Soil properties—

Permeability: Moderate in the surface layer and subsoil above the fragipan, slow or moderately slow in the fragipan and substratum

Available water capacity: Very low to moderate

Soil reaction: Very strongly acid or strongly acid throughout the solum, and very strongly acid to moderately acid in the substratum

Water table: Perched at a depth of 1.2 to 2.0 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most of the acreage is woodland, or is idle land that is reverting to brush. Some areas are cultivated for row crops grown in support of dairy farming, or are in hay or pasture.

This soil is well suited to most of the crops commonly grown in the county. The growing season is shorter for this soil than for nearby valley soils at lower elevations. The use of short-season or early maturing crop varieties is recommended. Draining the wetter included soils by random tile drains allows for earlier planting and more uniform management of the fields. Sufficient applications of lime are needed if legumes are to be established. Erosion is a hazard on long slopes in intensively cultivated areas. Farming on the contour, stripcropping, growing cover crops, and establishing diversions that break up long slopes help to control runoff and erosion.

Minimizing tillage, growing cover crops, incorporating crop residue into the soil, and mulching increase the rate of water infiltration during the growing season and help to maintain tilth.

This soil is well suited to pasture. Overgrazing and grazing when the soil is wet are the main concerns in managing pasture. The soil becomes compacted if the pasture is grazed during wet periods. Overgrazing and surface compaction restrict plant growth, damage pasture plants, and increase the rate of runoff. Applying a sufficient amount of lime and fertilizer, using proper stocking rates, rotating livestock grazing, and controlling weeds and brush are the main management concerns.

The potential productivity of this soil for northern red oak is moderately high. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is moderate. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival.

The depth to saturated zone and shrink-swell potential are the main limitations if this soil is used as a site for dwellings with basements. Installing drains around footings, and sealing foundations and basement walls will help to prevent excessive wetness in basements. Installing interceptor drains and diversion ditches in upslope areas diverts surface and subsurface water from the dwellings.

Depth to saturated zone, frost action, and shrink-swell potential are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems help to overcome these limitations.

The depth to saturated zone, depth to dense material, and restricted permeability are limitations if this soil is used as site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste systems are installed. Installing a drainage system in the area around the absorption field, and adding permeable fill material help overcome the seasonal wetness and the restricted permeability.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 2e.

# 85C—Onoville silt loam, 8 to 15 percent slopes

This soil is strongly sloping, very deep, and moderately well drained. It is on hillsides and colluvial side slopes that receive runoff from the higher adjacent soils. It occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are rectangular, and range from 5 to 30 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 8 inches, dark grayish brown silt loam with 5 percent channers

Subsoil:

- 8 to 16 inches, yellowish brown friable silt loam, with strong brown iron accumulations and light brownish gray iron depletions, 5 percent channers
- 16 to 22 inches, brown friable silty clay loam, with strong brown iron accumulations and light brownish gray iron depletions, and 10 percent channers
- 22 to 32 inches, yellowish brown firm channery loam, with strong brown iron accumulations and light gray iron depletions, and 20 percent channers
- 32 to 59 inches, yellowish brown very firm channery clay loam, with strong brown iron accumulations and gray iron depletions, and 25 percent channers
- 59 to 65 inches, yellowish brown firm channery silty clay loam, with light gray iron depletions, and 20 percent channers

#### Substratum:

65 to 72 inches, variegated dark grayish brown and yellowish brown firm channery clay loam, with pinkish gray iron depletions, and 20 percent channers

Included in mapping are small areas of the somewhat poorly drained Shongo soils along drainageways and in seepage spots, and other soils that are somewhat poorly drained which do not have a fragipan. Also included are small areas of well drained Kinzua soils on slight rises and knolls; Eldred soils which lack the fragipan; and Onoville soils that have more channers in the surface layer. Included areas make up about 10 to 20 percent of the unit.

### Soil properties—

Permeability: Moderate in the surface layer and subsoil above the fragipan, slow or moderately slow in the fragipan and substratum

Available water capacity: Very low to moderate Soil reaction: Very strongly acid or strongly acid

throughout the solum, and very strongly acid to moderately

acid in the substratum

Water table: Perched at a depth of 1.2 to 2.0 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most of the acreage of this soil is in woodland. Some areas are cultivated, or are in hay or pasture.

This soil is moderately well suited to cultivated crops, but the growing season is shorter for this soil than for nearby valley soils at lower elevations. The use of short-season or early maturing crop varieties is recommended. Draining the wetter included soils by random tile drains allows for earlier planting and more uniform management of the fields. Erosion is a hazard on intensively cultivated areas. Farming on the contour, stripcropping, growing cover crops, and establishing diversions that break up long slopes help to control runoff and erosion. Minimizing tillage, growing cover crops, incorporating crop residue into the soil, and mulching increase the rate of water infiltration during the growing season and help to maintain tilth. Areas where conservation practices cannot be applied are better suited to deep-rooted legumes than to cultivated crops. Sufficient applications of lime are needed if legumes are to be established.

This soil is well suited to pasture. Overgrazing is the main concern in managing pasture because it can damage pasture plants. Grazing when the soil is wet early in spring can result in surface compaction, damage to the pasture and severe erosion. Rotating livestock grazing, using proper stocking rates, controlling weeds and brush, and deferring grazing when the soil is wet are the main management concerns.

The potential productivity of this soil for northern red oak is moderately high. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building logging roads and skid trails on the contour helps control erosion and minimizes gullying along the trails.

The depth to saturated zone, slope, and shrink-swell potential are the main limitations if this soil is used as a site for dwellings with basements. Installing drains around footings and sealing foundations and basement walls will help to prevent excessive wetness in basements. Installing interceptor drains and diversion ditches in upslope areas diverts surface and subsurface water from the dwellings. Land grading and building on the contour help to overcome the slope limitation.

Depth to saturated zone, slope, frost action, and shrink-swell potential are the main limitations if this soil is used as a site for local roads and streets. Adding coarse

textured subgrade or base material and installing roadside drainage systems help to overcome these limitations. Land grading and building on the contour help to overcome the slope limitation.

The depth to saturated zone, depth to dense material, and restricted permeability are limitations on sites for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste systems are installed. Installing a drainage system in the area around the absorption field, and adding permeable fill material help overcome the seasonal wetness and the restricted permeability.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 3e.

# 85D—Onoville silt loam, 15 to 25 percent slopes

This soil is moderately steep, very deep, and moderately well drained. It is on valley sides and colluvial side slopes that receive runoff from the higher adjacent soils. It occurs at elevations above 1800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are oblong and narrow, and range from 10 to 40 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 8 inches, dark grayish brown silt loam with 5 percent channers

#### Subsoil:

- 8 to 16 inches, yellowish brown friable silt loam, with strong brown iron accumulations and light brownish gray iron depletions, 5 percent channers
- 16 to 22 inches, brown friable silty clay loam, with strong brown iron accumulations and light brownish gray iron depletions, and 10 percent channers
- 22 to 32 inches, yellowish brown firm channery loam, with strong brown iron accumulations and light gray iron depletions, and 20 percent channers
- 32 to 59 inches, yellowish brown very firm channery clay loam, with strong brown iron accumulations and gray iron depletions, and 25 percent channers
- 59 to 65 inches, yellowish brown firm channery silty clay loam, with light gray iron depletions, and 20 percent channers

### Substratum:

65 to 72 inches, variegated dark grayish brown and yellowish brown firm channery clay loam, with pinkish gray iron depletions, and 20 percent channers

Included in mapping are small areas of the somewhat poorly drained Shongo soils along drainageways and in seepage spots, and other soils that are somewhat poorly drained which do not have a fragipan. Also included are small areas of well drained Kinzua soils on slight rises and knolls; Eldred soils which lack the fragipan; and Onoville soils that have channery fragments in the surface layer. Included areas make up about 15 to 20 percent of the unit.

# Soil properties—

Permeability: Moderate in the surface layer and subsoil above the fragipan, slow or moderately slow in the fragipan and substratum

Available water capacity: Very low to moderate Soil reaction: Very strongly acid or strongly acid

throughout the solum, and very strongly acid to moderately

acid in the substratum

Water table: Perched at a depth of 1.2 to 2.0 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most of the acreage is woodland, or is idle land that is reverting to brush. Some areas are used for hay or pasture.

This soil is poorly suited to cultivated crops because of the slope and the severe hazard of erosion. The growing season is shorter for this soil than for nearby valley soils at lower elevations. The use of short-season or early maturing crop varieties is recommended. The slope limits the use of farm equipment. Tillage is slightly delayed in spring because of the wetness. Cultivated crops should be grown only occasionally, and the maximum number of conservation practices should be used. Growing cover crops, minimizing tillage, and establishing diversions that break up long slopes and divert excess runoff help to control erosion. Where the slope permits, farming on the contour and stripcropping are suitable. Because tilling the soil is difficult and erosion is a hazard, long-term sod crops are more practical than most other crops. A sufficient amount of lime and fertilizer is needed to maintain good crop growth.

This soil is moderately well suited to hay and pasture than to cultivated crops. Grazing when the soil is wet and overgrazing are the main concerns in managing pasture. Grazing when the soil is wet causes surface compaction and damage to the pasture. Overgrazing increases the hazard of erosion. Plowing across the slope and leaving strips of sod help to control erosion when an area is reseeded. Rotating livestock grazing, using proper stocking rates, controlling weeds and brush, deferring grazing when the soil is wet, and applying the proper kinds and amounts of lime and fertilizer are the main management concerns.

The potential productivity of this soil for northern red oak is moderately high. The hazard of off-road or off-trail erosion is moderate and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building logging roads and skid trails on the contour helps control erosion and minimizes gullying along the trails.

The depth to saturated zone, slope, and shrink-swell potential are the main limitations if this soil is used as a site for dwellings with basements. Installing drains around footings and sealing foundations and basement walls will help to prevent excessive wetness in basements. Installing interceptor drains and diversion ditches in upslope areas diverts surface and subsurface water from the dwellings. Land grading and building on the contour help to overcome the slope limitation.

Slope, depth to saturated zone, frost action, and shrink-swell potential are the main limitations if this soil is used as a site for local roads and streets. Land grading and building on the contour help to overcome the slope limitation. Adding coarse textured subgrade or base material and installing roadside drainage systems help to overcome these limitations.

The slope, depth to saturated zone, depth to dense material, and restricted permeability are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste systems are installed. Extensive land modification is needed to overcome the slope. Installing a subsurface drainage system upslope from the absorption field, and adding permeable fill material help overcome the seasonal wetness and the restricted permeability.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 4e.

# 86B—Eldred silt loam, 3 to 8 percent slopes

This soil is gently sloping, very deep, and moderately well drained. It is on hillsides and side slopes that receive runoff from the higher adjacent soils. It occurs at

elevations above 1800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are oblong, and range from 10 to 30 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 3 inches, very dark gray silt loam with 10 percent channers

### Subsoil:

3 to 9 inches, brown friable silt loam, with 10 percent channers

9 to 14 inches, pale brown friable silty clay loam, with brownish yellow iron accumulations, and 10 percent channers

- 14 to 22 inches, yellowish brown firm channery silty clay loam, with brownish yellow and strong brown iron accumulations, and 15 percent channers
- 22 to 42 inches, light olive brown firm channery silty clay loam, with yellowish brown iron accumulations and light brownish gray iron depletions, and 25 percent channers

#### Substratum:

42 to 72 inches, yellowish brown firm channery silty clay loam, with yellowish brown iron accumulations and light brownish gray iron depletions, and 20 percent channers

Included in mapping are small areas of somewhat poorly drained soils along drainageways and in seepage spots. Also included are small areas of well drained Kinzua soils on slight rises and knolls; well drained Carrollton soils which have bedrock within 40 inches of the surface; and, moderately well drained Onoville soils that have a fragipan. Included areas make up about 10 to 20 percent of the unit.

### Soil properties—

Permeability: Moderate in the surface layer and upper part of the subsoil, and moderately slow in the lower part of the subsoil, and moderately slow or slow in the substratum

Available water capacity: Moderate or high

Soil reaction: Strongly acid through extremely acid

throughout the profile

Water table: At a depth of 1.5 to 2.0 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most of the acreage of this soil is in woodland. Some areas are cultivated or are in hay or pasture.

This soil is well suited to cultivated crops, but the growing season is shorter for this soil than for nearby valley soils at lower elevations. The use of short-season or early maturing crop varieties is recommended. Draining the wetter included soils by random tile drains allows for earlier planting and more uniform management of the fields. Sufficient applications of lime are needed if legumes are to be established. Erosion is a hazard on long slopes in intensively cultivated areas. Farming on the contour, stripcropping, growing cover crops, and establishing diversions that break up long slopes help to control runoff and erosion. Minimizing tillage, growing cover crops, incorporating crop residue into the soil, and mulching increase the rate of water infiltration during the growing season and help to maintain tilth.

This soil is well suited to pasture. Overgrazing and grazing when the soil is wet are the main concerns in managing pasture. The soil becomes compacted if the pasture is grazed during wet periods. Overgrazing and surface compaction restrict plant growth, damage pasture plants, and increase the rate of runoff. Applying a sufficient

amount of lime and fertilizer, using proper stocking rates, rotating livestock grazing, and controlling weeds and brush are the main management concerns.

The potential productivity of this soil for northern red oak is moderately high. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is moderate. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival.

The depth to saturated zone and shrink-swell potential are the main limitations if this soil is used as a site for dwellings with basements. Installing drains around footings, and sealing foundations and basement walls will help to prevent excessive wetness in basements. Installing interceptor drains and diversion ditches in upslope areas diverts surface and subsurface water from the dwellings.

Depth to saturated zone, frost action, and shrink-swell potential are the main limitations if this is used as a site for local roads and streets. Adding coarse textured subgrade or base material, and installing roadside drainage systems help to overcome these limitations.

The depth to saturated zone and restricted permeability in the lower subsoil and substratum are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste systems are installed. Installing a drainage system in the area around the absorption field, and adding permeable fill material help overcome the seasonal wetness and the restricted permeability.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 2e.

# 86C—Eldred silt loam, 8 to 15 percent slopes

This soil is strongly sloping, very deep, and moderately well drained. It is on hillsides and side slopes that receive runoff from the higher adjacent soils. It occurs at elevations above 1800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are oblong, and range from 10 to 50 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 3 inches, very dark gray silt loam with 10 percent channers

Subsoil:

3 to 9 inches, brown friable silt loam, with 10 percent channers

9 to 14 inches, pale brown friable silty clay loam, with brownish yellow iron accumulations, and 10 percent channers

- 14 to 22 inches, yellowish brown firm channery silty clay loam, with brownish yellow and strong brown iron accumulations, and 15 percent channers
- 22 to 42 inches, light olive brown firm channery silty clay loam, with yellowish brown iron accumulations and light brownish gray iron depletions, and 25 percent channers

Substratum:

42 to 72 inches, yellowish brown firm channery silty clay loam, with yellowish brown iron accumulations and light brownish gray iron depletions, and 20 percent channers

Included in mapping are small areas of somewhat poorly drained soils along drainageways and in seepage spots. Also included are small areas of well drained Kinzua soils on slight rises and knolls; well drained Carrollton soils which have

bedrock within 40 inches of the surface; and, moderately well drained Onoville soils that have a fragipan. Included areas make up about 10 to 20 percent of the unit.

### Soil properties—

Permeability: Moderate in the surface layer and upper part of the subsoil, and moderately slow in the lower part of the subsoil, and moderately slow or slow in the substratum

Available water capacity: Moderate or high

Soil reaction: Strongly acid through extremely acid throughout the profile Water table: At a depth of 1.5 to 2.0 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most of the acreage of this soil is in woodland. Some areas are cultivated or are in hay or pasture.

This soil is moderately well suited to cultivated crops, but the growing season is shorter for this soil than for nearby valley soils at lower elevations. The use of short-season or early maturing crop varieties is recommended. Draining the wetter included soils by random tile drains allows for earlier planting and more uniform management of the fields. Sufficient applications of lime are needed if legumes are to be established. Erosion is a hazard on long slopes in intensively cultivated areas. Farming on the contour, stripcropping, growing cover crops, and establishing diversions that break up long slopes help to control runoff and erosion. Minimizing tillage, growing cover crops, incorporating crop residue into the soil, and mulching increase the rate of water infiltration during the growing season and help to maintain tilth.

This soil is well suited to pasture. Overgrazing and grazing when the soil is wet are the main concerns in managing pasture. The soil becomes compacted if the pasture is grazed during wet periods. Overgrazing and surface

compaction restrict plant growth, damage pasture plants, and increase the rate of runoff. Applying a sufficient amount of lime and fertilizer, using proper stocking rates, rotating livestock grazing, and controlling weeds and brush are the main management concerns.

The potential productivity of this soil for northern red oak is moderately high. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building logging roads and skid trails on the contour helps control erosion and minimizes gullying along the trails.

The depth to saturated zone, slope, and shrink-swell potential are the main limitations if this soil is used as a site for dwellings with basements. Installing drains around footings, and sealing foundations and basement walls will help to prevent excessive wetness in basements. Installing interceptor drains and diversion ditches in upslope areas diverts surface and subsurface water from the dwellings. Land grading and building on the contour help to overcome the slope limitation.

Depth to saturated zone, slope, frost action, and shrink-swell potential are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems help to overcome these limitations. Land grading and building on the contour help to overcome the slope limitation.

The depth to saturated zone and restricted permeability in the lower subsoil and substratum are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste systems are installed. Installing a drainage system in the area around the absorption field, and

adding permeable fill material help overcome seasonal wetness and the restricted permeability.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 3e.

# 86D—Eldred silt loam, 15 to 25 percent slopes

This soil is moderately steep, very deep, and moderately well drained. It is on valley sides and side slopes that receive runoff from the higher adjacent soils. It occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are oblong, and range from 10 to 35 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 3 inches, very dark gray silt loam with 10 percent channers

#### Subsoil:

3 to 9 inches, brown friable silt loam, with 10 percent channers

9 to 14 inches, pale brown friable silty clay loam, with brownish yellow iron accumulations, and 10 percent channers

- 14 to 22 inches, yellowish brown firm channery silty clay loam, with brownish yellow and strong brown iron accumulations, and 15 percent channers
- 22 to 42 inches, light olive brown firm channery silty clay loam, with yellowish brown iron accumulations and light brownish gray iron depletions, and 25 percent channers

### Substratum:

42 to 72 inches, yellowish brown firm channery silty clay loam, with yellowish brown iron accumulations and light brownish gray iron depletions, and 20 percent channers

Included in mapping are small areas of somewhat poorly drained soils along drainageways and in seepage spots. Also included are small areas of well drained Kinzua soils on slight rises and knolls; well drained Carrollton soils which have bedrock within 40 inches of the surface; and, moderately well drained Onoville soils that have a fragipan. Included areas make up about 10 to 20 percent of the unit.

### Soil properties—

Permeability: Moderate in the surface layer and upper part of the subsoil, and moderately slow in the lower part of the subsoil, and moderately slow or slow in the substratum

Available water capacity: Moderate or high

Soil reaction: Strongly acid through extremely acid throughout the profile *Water table*: At a depth of 1.5 to 2.0 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most of the acreage is in woodland. Some areas are idle land that is reverting to brush. A few areas are used for hay or pasture.

This soil is poorly suited to cultivated crops because of the slope and the severe hazard of erosion. The growing season is shorter for this soil than for nearby valley soils at lower elevations. The use of short-season or early maturing crop varieties is recommended. The slope limits the use of farm equipment. Tillage is slightly delayed in spring because of the wetness. Cultivated crops should be grown only occasionally,

and the maximum number of conservation practices should be used. Growing cover crops, minimizing tillage, and establishing diversions that break up long slopes and divert excess runoff help to control erosion. Where the slope permits, farming on the contour and stripcropping are suitable. Because tilling the soil is difficult and erosion is a hazard, long-term sod crops are more practical than most other crops. Applying a sufficient amount of lime and fertilizer is needed to maintain good crop growth.

This soil is generally better suited to hay and pasture than to cultivated crops. Grazing when the soil is wet and overgrazing are main concerns in managing pasture. Grazing when the soil is wet causes surface compaction and damage to the pasture. Overgrazing increases the hazard of erosion. Plowing across the slope and leaving strips of sod help to control erosion when an area is reseeded. Rotating livestock grazing, using proper stocking rates, controlling weeds and brush, deferring grazing when the soil is wet, and applying the proper kinds and amounts of lime and fertilizer are the main management concerns.

The potential productivity of this soil for northern red oak is moderately high. The hazard of off-road or off-trail erosion is moderate and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building logging roads and skid trails on the contour helps control erosion and minimizes gullying along the trails.

The depth to saturated zone, slope, and shrink-swell potential are the main limitations if this soil is used as a site for dwellings with basements. Installing drains around footings, and sealing foundations and basement walls will help to prevent excessive wetness in basements. Installing interceptor drains and diversion ditches in upslope areas diverts surface and subsurface water from the dwellings. Land grading and building on the contour help to overcome the slope limitation.

Slope, depth to saturated zone, frost action, and shrink-swell potential are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems help to overcome these limitations. Land grading and building on the contour help to overcome the slope limitation.

The depth to saturated zone, the slope, and the restricted permeability in the lower subsoil and substratum are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste systems are installed. Extensive land modification is needed to overcome the slope. Installing a subsurface drainage system upslope from the absorption field, and adding permeable fill material help overcome seasonal wetness and the restricted permeability.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 4e.

# 87B—Shongo silt loam, 3 to 8 percent slopes

This soil is gently sloping, very deep, and somewhat poorly drained. It is on hillsides, lower colluvial side slopes, and concave toe slopes that receive runoff from the higher adjacent soils. It occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are oblong or irregularly shaped, and range from 5 to 75 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 6 inches, dark grayish brown silt loam with 5 percent channers

#### Subsoil:

6 to 14 inches, yellowish brown friable silt loam, with strong brown iron accumulations and light brownish gray iron depletions, and 5 percent channers

- 14 to 24 inches, brown friable silty clay loam, with strong brown iron accumulations and light brownish gray iron depletions, and 10 percent channers
- 24 to 45 inches, grayish brown very firm channery silty clay loam, with yellowish brown iron accumulations and light brownish gray iron depletions, and 30 percent channers
- 45 to 56 inches, light olive brown firm channery silty clay loam, with yellowish brown iron accumulations and gray iron depletions, and 30 percent channers
- 56 to 72 inches, light olive brown firm channery silty clay loam, with 35 percent channers

Included in mapping are small areas of poorly drained soils in slight depressions and along drainageways, and Ivory soils which do not have a fragipan and have more clay in the subsoil than the Shongo soil. Also included are small areas of moderately well drained Onoville soils on slight rises and knolls; Frewsburg soils which have bedrock within a depth of 40 inches; and, small areas of Shongo soils that have a channery surface layer. Small areas that have a stony surface are also included, especially along drainageways. Included areas make up about 15 to 25 percent of this unit.

### Soil properties—

Permeability: Moderate or moderately slow in the surface layer and upper subsoil, and moderately slow or slow in the fragipan and substratum

Available water capacity: Low or moderate

Soil reaction: Very strongly acid through moderately acid in the surface layer and subsoil, and very strongly acid to slightly acid in the substratum

Water table: Perched at a depth of 0.5 to 1.5 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most of the acreage is in woodland, or is idle land reverting to woodland. Some areas are used for small grain, corn, or hay grown in support of dairy farming. These areas generally are farmed at a low level of intensity.

This soil is moderately well suited to cultivated crops. The growing season is shorter than for nearby valley soils at lower elevations. The use of short-season or early maturing crop varieties is recommended. Unless a drainage system is installed, planting is delayed in spring, and the soil can be used only for short-season annual crops, hay, or pasture. Harvesting crops during prolonged wet periods in the fall is difficult. If drained and protected from erosion, the soil is suited to the crops commonly grown in the county. Interceptor drains can divert runoff from the higher adjacent soils, and tile and open-ditch drainage systems can remove excess water. Tile drains generally should be closely spaced because of the restricted permeability in the subsoil. Erosion can be controlled by stripcropping, farming on the contour, growing cover crops, and minimizing tillage. Incorporating crop residue into the soil and tilling only when the soil is at the proper moisture content improve tilth and help to maintain the content of organic matter.

This soil is well suited to water-tolerant hay and to late-spring pasture. Overgrazing and grazing when the soil is wet are the major concerns in managing pasture. Grazing when the soil is wet causes surface compaction, restricts plant growth, and can deplete the stand of pasture grasses and thus result in serious erosion. Using proper stocking rates, rotating livestock grazing, deferring grazing when the soil is wet, controlling weeds and brush, and selecting water-tolerant species for seeding are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is moderate. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand the seasonal wetness grow best.

The depth to saturated zone and shrink-swell potential are the main limitations on sites for dwellings with basements. Installing drains around footings, and sealing foundations and basement walls will help to prevent excessive wetness in basements. Installing interceptor drains and diversion ditches in upslope areas diverts surface and subsurface water from the dwellings.

Depth to saturated zone, frost action, and shrink-swell potential are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems help to overcome these limitations.

The depth to saturated zone, depth to dense material, and restricted permeability are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system in the area around the absorption field, reduces the seasonal wetness, and adding permeable fill material helps to overcome the seasonal wetness and the restricted permeability.

Erosion is a serious hazard if the plant cover is removed during construction. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 3w.

# 87C—Shongo silt loam, 8 to 15 percent slopes

This soil is strongly sloping, very deep, and somewhat poorly drained. It is on hillsides, lower colluvial side slopes, and concave toe slopes that receive runoff from the higher adjacent soils. It occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are oblong or rectangular, and range from 10 to 50 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 6 inches, dark grayish brown silt loam with 5 percent channers

#### Subsoil:

- 6 to 14 inches, yellowish brown friable silt loam, with strong brown iron accumulations and light brownish gray iron depletions, and 5 percent channers
- 14 to 24 inches, brown friable silty clay loam, with strong brown iron accumulations and light brownish gray iron depletions, and 10 percent channers
- 24 to 45 inches, grayish brown very firm channery silty clay loam, with yellowish brown iron accumulations and light brownish gray iron depletions, and 30 percent channers
- 45 to 56 inches, light olive brown firm channery silty clay loam, with yellowish brown iron accumulations and gray iron depletions, and 30 percent channers
- 56 to 72 inches, light olive brown firm channery silty clay loam, with 35 percent channers

Included in mapping are small areas of poorly drained soils in slight depressions and along drainageways; and Ivory soils which have more clay in the subsoil than the Shongo soil. Also included are small areas of moderately well drained Onoville soils on slight rises and knolls; Frewsburg soils which have bedrock within a depth of 40 inches; and, small areas of Shongo soils that have a channery surface layer. Small

areas that have a stony surface are also included, especially along drainageways. Included areas make up about 15 to 25 percent of this unit.

### Soil properties—

*Permeability:* Moderate or moderately slow in the surface layer and upper subsoil, and moderately slow or slow in the fragipan and substratum

Available water capacity: Low or moderate

Soil reaction: Very strongly acid through moderately acid in the surface layer and subsoil, and very strongly acid to slightly acid in the substratum

Water table: Perched at a depth of 0.5 to 1.5 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most of the acreage is in woodland, or is idle land reverting to woodland. Some areas are used for small grain, corn, or hay grown in support of dairy farming. These areas generally are farmed at a low level of intensity.

This soil is moderately well suited to cultivated crops. The growing season is shorter than for nearby valley soils at lower elevations. The use of short-season or early maturing crop varieties is recommended. Unless a drainage system is installed, planting is delayed in spring, and the soil can be used only for short-season annual crops, hay, or pasture. Harvesting crops during prolonged wet periods in fall is difficult. If drained and protected from erosion, the soil is suited to the crops commonly grown in the county. Interceptor drains can divert runoff from the higher adjacent soils, and tile and open-ditch drainage systems can remove excess water. Tile drains generally should be closely spaced because of the restricted permeability in the subsoil. Erosion can be controlled by stripcropping, farming on the contour, growing cover crops, and minimizing tillage. Incorporating crop residue into the soil and tilling only when the soil is at the proper moisture content improve tilth and help to maintain the content of organic matter.

This soil is well suited to water-tolerant hay and to late-spring pasture. Overgrazing and grazing when the soil is wet are the major concerns in managing pasture. Grazing when the soil is wet causes surface compaction, restricts plant growth, and can deplete the stand of pasture grasses and thus result in serious erosion. Using proper stocking rates, rotating livestock grazing, deferring grazing when the soil is wet, controlling weeds and brush, and selecting water-tolerant species for seeding are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand the seasonal wetness grow best. Building logging roads and skid trails on the contour helps control erosion and minimizes gullying along the trails.

The depth to saturated zone, slope, and shrink-swell potential are the main limitations if this soil is used as a site for dwellings with basements. Installing drains around footings, and sealing foundations and basement walls will help to prevent excessive wetness in basements. Installing interceptor drains and diversion ditches in upslope areas diverts surface and subsurface water from the dwellings. Land grading and building on the contour help to overcome the slope limitation.

Depth to saturated zone, frost action, slope, and shrink-swell potential are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material, and installing roadside drainage systems help to overcome these limitations. Land grading and building on the contour help to overcome the slope limitation.

The depth to saturated zone, depth to dense material, and restricted permeability are limitations if this soil is used as a site for septic tank absorption fields. Extensive

engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system in the area around the absorption field, reduces the seasonal wetness, and adding permeable fill material helps to overcome the seasonal wetness and the restricted permeability.

Erosion is a serious hazard if the plant cover is removed during construction. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 3e.

# 88A—Ivory silt loam, 0 to 3 percent slopes

This soil is nearly level, very deep, and somewhat poorly drained. It is on broad hilltops and benches. It occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are circular or oblong, and range from 5 to 30 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 6 inches, dark grayish brown silt loam with 10 percent channers

#### Subsoil

- 6 to 14 inches, yellowish brown friable channery silt loam, with strong brown iron accumulations, and 15 percent channers
- 14 to 24 inches, yellowish brown friable channery silty clay loam, with strong brown iron accumulations and light brownish gray iron depletions, and 15 percent channers
- 24 to 38 inches, brown friable channery silty clay, with strong brown iron accumulations and gray iron depletions, and 25 percent channers

### Substratum:

- 38 to 48 inches, gray, brown and strong brown firm channery silty clay, with 30 percent channers
- 48 to 72 inches, gray, brown, and strong brown channery silty clay loam, with 25 percent channers

Included in mapping are small areas of poorly drained soils along drainageways and in slight depressions, and small areas of Frewsburg soils which have bedrock at a depth of 20 to 40 inches. Also included are small areas of moderately well drained Eldred soils on higher knolls, and small areas of Shongo soils which have a fragipan and less clay than the Ivory soils. Included areas make up about 10 to 20 percent of this unit.

#### Soil properties—

Permeability: Moderately slow in the surface layer and upper subsoil, slow in the lower subsoil and substratum

Available water capacity: Moderate to high

Soil reaction: Very strongly acid to moderately acid throughout the profile Water table: Perched at a depth of 0.5 to 1.5 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most of the acreage is woodland or is idle land that is reverting to woodland. Some areas are used for small grain, corn, or hay grown in support of dairy farming. Where drained, this soil meets the requirements for prime farmland.

Unless drained, this soil is moderately well suited to most of the crops commonly grown in the county. The growing season is shorter for this soil than for nearby valley

soils at lower elevations. The use of short-season or early maturing crop varieties is recommended. Unless a drainage system is installed, planting is delayed in spring, harvesting may be difficult in fall, and the soil can be used only for short-season annual crops, hay or pasture. Interceptor drains can divert runoff, and the tile and open-ditch drainage systems can remove excess water. Subsurface drains should be closely spaced because of the restricted permeability in the subsoil. The soil is subject to compaction if it is tilled when wet. Rotating crops, incorporating crop residue into the soil, minimizing tillage, and growing cover crops help to maintain tilth and increase the content of organic matter. Because of natural acidity and low fertility, the soil requires sufficient applications of lime and fertilizer.

This soil is well suited to water-tolerant grasses and late-spring pasture. Overgrazing and grazing when the soil is wet are the main concerns in managing pasture. Grazing when the soil is wet causes surface compaction, restricts plant growth, depletes the stand of pasture grasses, and increases the hazard of erosion. Plants respond well to applications of lime and fertilizer. Using proper stocking rates, rotating livestock grazing, deferring grazing when the soil is wet, controlling brush and weeds, and selecting water-tolerant species for seeding are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion and the hazard of erosion on roads and trails are slight. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand the seasonal wetness grow best.

The depth to saturated zone and shrink-swell potential are the main limitations if this soil is used as a site for dwellings with basements. Installing drains around footings, and sealing foundations and basement walls will help to prevent excessive wetness in basements. Installing interceptor drains and diversion ditches in upslope areas diverts surface and subsurface water from the dwellings.

Depth to saturated zone, frost action, and shrink-swell potential are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems help to overcome these limitations.

The depth to saturated zone and the restricted permeability are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system in the area around the absorption field reduces the seasonal wetness, and adding permeable fill material helps to overcome the restricted permeability.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible. Recompacting this soil after it has been disturbed commonly is difficult because of the high clay content.

The capability subclass is 3w.

# 88B—Ivory silt loam, 3 to 8 percent slopes

This soil is gently sloping, very deep, and somewhat poorly drained. It is on broad hilltops and side slopes, and concave toeslopes. It occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are circular or oblong, and range from 5 to 30 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 6 inches, dark grayish brown silt loam with 10 percent channers

#### Subsoil:

- 6 to 14 inches, yellowish brown friable channery silt loam, with strong brown iron accumulations, and 15 percent channers
- 14 to 24 inches, yellowish brown friable channery silty clay loam, with strong brown iron accumulations and light brownish gray iron depletions, and 15 percent channers
- 24 to 38 inches, brown friable channery silty clay, with strong brown iron accumulations and gray iron depletions, and 25 percent channers

#### Substratum:

- 38 to 48 inches, gray, brown and strong brown firm channery silty clay, with 30 percent channers
- 48 to 72 inches, gray, brown, and strong brown channery silty clay loam, with 25 percent channers

Included in mapping are small areas of poorly drained soils along drainageways and in slight depressions, and small areas of Frewsburg soils which have bedrock at a depth of 20 to 40 inches. Also included are small areas of moderately well drained Eldred soils on higher knolls, and small areas of Shongo soils which have a fragipan and less clay than the Ivory soils. Included areas make up about 10 to 20 percent of this unit.

### Soil properties—

Permeability: Moderately slow in the surface layer and upper subsoil, slow in the lower subsoil and

substratum

Available water capacity: Moderate or high

Soil reaction: Very strongly acid to moderately acid throughout the profile Water table: Perched at a depth of 0.5 to 1.5 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most of the acreage is woodland, or is idle land that is reverting to woodland. Some areas are used for small grain, corn, or hay grown in support of dairy farming.

This soil is moderately well suited to most of the crops commonly grown in the county. The growing season is shorter for this soil than for nearby valley soils at lower elevations. The use of short-season or early maturing crop varieties is recommended. Unless a drainage system is installed, planting is delayed in spring, harvesting may be difficult in fall, and the soil can be used only for short-season annual crops, hay or pasture. Erosion is a hazard in intensively cultivated areas. Interceptor drains can divert runoff, and the tile and open-ditch drainage systems can remove excess water. Subsurface drains should be closely spaced because of the restricted permeability in the clayey subsoil. Tilling only when the soil is at the proper moisture content minimizes the surface crusting and clodding. Contour farming and stripcropping in combination with diversions or grassed waterways help to control runoff and erosion. Rotating crops, incorporating crop residue into the soil, minimizing tillage, and growing cover crops help to maintain tilth, increase the content of organic matter and minimize crusting and clodding. Because of natural acidity and low fertility, the soil requires sufficient applications of lime and fertilizer.

This soil is well suited to water-tolerant grasses and late-spring pasture. Overgrazing and grazing when the soil is wet are the main concerns in managing pasture. Grazing when the soil is wet causes surface compaction, restricts plant growth, depletes the stand of pasture grasses, and increases the hazard of erosion. Plants respond well to applications of lime and fertilizer. Using proper stocking rates, rotating livestock grazing, deferring grazing when the soil is wet, controlling brush and

weeds, and selecting water-tolerant species for seeding are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is moderate. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand the seasonal wetness grow best.

The depth to saturated zone and shrink-swell potential are the main limitations if this soil is used as a site for dwellings with basements. Installing drains around footings, and sealing foundations and basement walls will help to prevent excessive wetness in basements. Installing interceptor drains and diversion ditches in upslope areas diverts surface and subsurface water from the dwellings.

Depth to saturated zone, frost action, and shrink-swell potential are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems help to overcome these limitations.

The depth to saturated zone and the restricted permeability are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system in the area around the absorption field reduces the seasonal wetness, and adding permeable fill material helps to overcome the restricted permeability.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible. Recompacting this soil after it has been disturbed commonly is difficult because of the high clay content. The capability subclass is 3w.

# 88C—Ivory silt loam, 8 to 15 percent slopes

This soil is strongly sloping, very deep, and somewhat poorly drained. It is on side slopes and concave toeslopes that receive runoff from the higher adjacent soils. It occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are circular or oblong, and range from 5 to 30 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 6 inches, dark grayish brown silt loam with 10 percent channers

#### Subsoil:

- 6 to 14 inches, yellowish brown friable channery silt loam, with strong brown iron accumulations, and 15 percent channers
- 14 to 24 inches, yellowish brown friable channery silty clay loam, with strong brown iron accumulations and light brownish gray iron depletions, and 15 percent channers
- 24 to 38 inches, brown friable channery silty clay, with strong brown iron accumulations and gray iron depletions, and 25 percent channers

#### Substratum:

- 38 to 48 inches, gray, brown and strong brown firm channery silty clay, with 30 percent channers
- 48 to 72 inches, gray, brown, and strong brown channery silty clay loam, with 25 percent channers

Included in mapping are small areas of poorly drained soils along drainageways and in slight depressions and small areas of Frewsburg soils which have bedrock at a

depth of 20 to 40 inches. Also included are small areas of moderately well drained Eldred soils on higher knolls, and small areas of Shongo soils that have a fragipan and less clay than the Ivory soils. Included areas make up about 10 to 20 percent of this unit.

### Soil properties—

Permeability: Moderately slow in the surface layer and upper subsoil, slow in the

lower subsoil and substratum

Available water capacity: Moderate or high

Soil reaction: Very strongly acid to moderately acid throughout the profile Water table: Perched at a depth of 0.5 to 1.5 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most of the acreage is woodland, or is idle land that is reverting to woodland. Some areas are used for small grain, corn, or hay grown in support of dairy farming.

This soil is moderately well suited to most of the crops commonly grown in the county. The growing season is shorter for this soil than for nearby valley soils at lower elevations. The use of short-season or early maturing crop varieties is recommended. Unless a drainage system is installed, planting is delayed in spring, harvesting may be difficult in fall, and the soil can be used only for short-season annual crops, hay or pasture. Interceptor drains can divert runoff, and the tile and open-ditch drainage systems can remove excess water. Tile drains generally should be closely spaced because of the slowly permeable, clayey subsoil. Tilling only when the soil is at the proper moisture content minimizes the surface crusting and clodding. Erosion is a hazard in intensively cultivated areas. Contour farming and stripcropping in combination with diversions or grassed waterways help to control runoff and erosion. Rotating crops, incorporating crop residue into the soil, minimizing tillage, and growing cover crops help to maintain tilth, increase the content of organic matter and minimize crusting and clodding. Because of natural acidity and low fertility, the soil requires sufficient applications of lime and fertilizer.

This soil is well suited to water-tolerant grasses and late-spring pasture. Overgrazing and grazing when the soil is wet are the main concerns in managing pasture. Grazing when the soil is wet causes surface compaction, restricts plant growth, depletes the stand of pasture grasses, and increases the hazard of erosion. Plants respond well to applications of lime and fertilizer. Using proper stocking rates, rotating livestock grazing, deferring grazing when the soil is wet, controlling brush and weeds, and selecting water-tolerant species for seeding are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion is moderate and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand the seasonal wetness grow best. Building logging roads and skid trails on the contour helps control erosion and minimizes gullying along the trails.

The depth to saturated zone, slope, and shrink-swell potential are the main limitations if this soil is used as a site for dwellings with basements. Installing drains around footings, and sealing foundations and basement walls will help to prevent excessive wetness in basements. Installing interceptor drains and diversion ditches in upslope areas diverts surface and subsurface water from the dwellings. Land grading and building on the contour help to overcome the slope limitation.

Depth to saturated zone, frost action, slope, and shrink-swell potential are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material, and installing roadside drainage systems help to

increase soil strength and reduce the seasonal wetness. Land grading and building on the contour help to overcome the slope limitation.

The depth to saturated zone and the restricted permeability are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system in the area around the absorption field reduces the seasonal wetness, and adding permeable fill material helps to overcome the restricted permeability.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible. Recompacting this soil after it has been disturbed commonly is difficult because of the content of clay. The capability subclass is 3e.

# 88D—Ivory silt loam, 15 to 25 percent slopes

This soil is moderately steep, very deep, and somewhat poorly drained. It is on side slopes and concave toeslopes that receive runoff from the higher adjacent soils. It occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are circular or oblong, and range from 5 to 25 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 6 inches, dark grayish brown silt loam with 10 percent channers

#### Subsoil:

- 6 to 14 inches, yellowish brown friable channery silt loam, with strong brown iron accumulations, and 15 percent channers
- 14 to 24 inches, yellowish brown friable channery silty clay loam, with strong brown iron accumulations and light brownish gray iron depletions, and 15 percent channers
- 24 to 38 inches, brown friable channery silty clay, with strong brown iron accumulations and gray iron depletions, and 25 percent channers

### Substratum:

- 38 to 48 inches, gray, brown and strong brown firm channery silty clay, with 30 percent channers
- 48 to 72 inches, gray, brown, and strong brown channery silty clay loam, with 25 percent channers

Included in mapping are small areas of poorly drained soils along drainageways and in slight depressions, and small areas of Frewsburg soils which have bedrock at a depth of 20 to 40 inches. Also included are small areas of moderately well drained Eldred soils on higher knolls, and small areas of Shongo soils that have a fragipan and less clay than the Ivory soils. Included areas make up about 10 to 20 percent of this unit.

# Soil properties—

Permeability: Moderately slow in the surface layer and upper subsoil, slow in the lower subsoil and substratum

Available water capacity: Moderate or high

Soil reaction: Very strongly acid to moderately acid throughout the profile Water table: Perched at a depth of 0.5 to 1.5 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most of the acreage is woodland. Some areas are idle land that is reverting to brush. A few areas are used for hay or pasture.

This soil is poorly suited to cultivated crops because of the slope and the severe hazard of erosion. The slope limits the use of farm equipment. Cultivated crops should be grown only occasionally, and the maximum number of conservation practices should be used. The growing season is shorter for this soil than for nearby valley soils at lower elevations. The use of short-season or early maturing crop varieties is recommended. Growing cover crops, minimizing tillage, and establishing diversions that break up long slopes and divert excess runoff help to control erosion. Where the slope permits, farming on the contour and stripcropping are suitable. Because tilling the soil is difficult and erosion is a hazard, long-term sod crops are more practical than most other crops. Sufficient amounts of lime and fertilizer are needed to maintain good crop growth.

This soil is generally better suited to hay and pasture than to cultivated crops. Grazing when the soil is wet and overgrazing are main concerns in managing pasture. Grazing when the soil is wet causes surface compaction and damage to the pasture. Overgrazing increases the hazard of erosion. Plowing across the slope and leaving strips of sod help to control erosion when an area is reseeded. Rotating livestock grazing, using proper stocking rates, controlling weeds and brush, deferring grazing when the soil is wet, and applying the proper kinds and amounts of lime and fertilizer are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion is moderate and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand the seasonal wetness grow best. Building logging roads and skid trails on the contour helps control erosion and minimizes gullying along the trails.

The depth to saturated zone, slope and shrink-swell potential are the main limitations if this soil is used as a site for dwellings with basements. Installing drains around footings, and sealing foundations and basement walls will help to prevent excessive wetness in basements. Installing interceptor drains and diversion ditches in upslope areas diverts surface and subsurface water from the dwellings. Land grading and building on the contour help to overcome the slope limitation.

Depth to saturated zone, frost action, slope, and shrink-swell potential are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems help to increase soil strength and reduce the potential for frost action. Installing roadside drainage systems reduces the wetness. Land grading and building on the contour help to overcome the slope limitation.

The depth to saturated zone, the slope, and the restricted permeability are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Land grading and building on the contour help to overcome the slope. Installing a drainage system in the area around the absorption field reduces the seasonal wetness, and adding permeable fill material helps to overcome the restricted permeability.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible. Recompacting this soil after it has been disturbed commonly is difficult because of the high clay content.

The capability subclass is 4e.

# 89B—Portville silty clay loam, 3 to 8 percent slopes

This soil is gently sloping, very deep, and somewhat poorly drained. It is on hillsides, lower colluvial side slopes, and concave toeslopes that receive runoff from the higher adjacent soils. Individual areas are oblong or irregularly shaped, and range from 5 to 85 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 7 inches, dark grayish brown silty clay loam with 10 percent channers

# Subsurface layers:

7 to 12 inches, pale brown friable channery silt loam, with strong brown iron accumulations and light brownish gray iron depletions, and 15 percent channers

12 to 22 inches, light brownish gray and dark yellowish brown, friable and firm, channery silt loam, with strong brown iron accumulations and light brownish gray iron depletions, and 20 percent channers

#### Subsoil:

22 to 35 inches, yellowish brown very firm channery silt loam, with strong brown iron accumulations and light brownish gray iron depletions, and 20 percent channers

35 to 50 inches, yellowish brown very firm channery silt loam, with strong brown iron accumulations and light brownish gray iron depletions, and 30 percent channers

#### Substratum:

50 to 60 inches, yellowish brown firm channery silty clay loam, with gray iron depletions, and 15 percent channers

60 to 72 inches, yellowish brown firm very gravelly silty clay loam, with 40 percent gravel

Included in mapping are small areas of poorly drained Brinkerton soils in slight depressions and along drainageways, and Cavode soils which have more clay in the subsoil than the Portville soil. Also included are small areas of moderately well drained Buchanan soils in more sloping areas, and somewhat poorly drained soils which have bedrock within a depth of 40 inches. Included areas make up about 15 to 25 percent of this unit.

### Soil properties—

Permeability: Moderate or moderately slow in the surface and subsurface layers and moderately slow or slow in the fragipan and substratum

Available water capacity: Very low to moderate

Soil reaction: Very strongly acid to moderately acid in the surface layer, subsurface layers and subsoil, and very strongly acid to slightly acid in the substratum Water table: Perched at a depth of 0.5 to 1.5 feet from November through May Flooding hazard: None

Depth to bedrock: More than 6 feet

Most of the acreage is in woodland, or is idle land that is reverting to woodland. Some areas are used for small grain, corn, or hay grown in support of dairy farming. These areas generally are farmed at a low level of intensity.

This soil is moderately well suited to cultivated crops. Unless a drainage system is installed, planting is delayed in spring and the soil can be used only for short-season annual crops, hay, or pasture. Harvesting crops during prolonged wet periods in fall is difficult. If drained and protected from erosion, the soil is suited to the crops commonly grown in the county. Interceptor drains can divert runoff from the higher adjacent soils, and tile and open-ditch drainage systems can remove excess water. Tile drains generally should be closely spaced because of the restricted permeability

in the subsoil. Erosion can be controlled by stripcropping, farming on the contour, growing cover crops, and minimizing tillage. Incorporating crop residue into the soil and tilling only when the soil is at the proper moisture content improve tilth and help to maintain the content of organic matter.

This soil is well suited to water-tolerant hay and to late-spring pasture. Overgrazing and grazing when the soil is wet are the major concerns in managing pasture. Grazing when the soil is wet causes surface compaction, restricts plant growth, and can deplete the stand of pasture grasses, and thus result in serious erosion. Using proper stocking rates, rotating livestock grazing, deferring grazing when the soil is wet, controlling weeds and brush, and selecting water-tolerant species for seeding are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is moderate. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand the seasonal wetness grow best.

The depth to saturated zone and shrink-swell potential are the main limitations if this soil is used as a site for dwellings with basements. Installing drains around footings and sealing foundations and basement walls will help to prevent excessive wetness in basements. Installing interceptor drains and diversion ditches in upslope areas diverts surface and subsurface water from the dwellings.

Depth to saturated zone, frost action, and shrink-swell potential are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material, and installing roadside drainage systems help to increase soil strength, and reduce the potential for frost action. Installing roadside drainage systems also helps reduce the wetness.

The depth to saturated zone, depth to dense material, and restricted permeability are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system in the area around the absorption field reduces the seasonal wetness, and adding permeable fill material helps to overcome the seasonal wetness and the restricted permeability.

Erosion is a serious hazard if the plant cover is removed during construction. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 3w.

# 89C—Portville silty clay loam, 8 to 15 percent slopes

This soil is strongly sloping, very deep, and somewhat poorly drained. It is on hillsides, lower colluvial side slopes, and concave toeslopes that receive runoff from the higher adjacent soils. Individual areas are oblong or irregularly shaped, and range from 5 to 75 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 7 inches, dark grayish brown silty clay loam with 10 percent channers

#### Subsurface layers:

7 to 12 inches, pale brown friable channery silt loam, with strong brown iron accumulations and light brownish gray iron depletions, and 15 percent channers

12 to 22 inches, light brownish gray and dark yellowish brown, friable and firm, channery silt loam, with strong brown iron accumulations and light brownish gray iron depletions, and 20 percent channers

#### Subsoil:

22 to 35 inches, yellowish brown very firm channery silt loam, with strong brown iron accumulations and light brownish gray iron depletions, and 20 percent channers 35 to 50 inches, yellowish brown very firm channery silt loam, with strong brown iron accumulations and light brownish gray iron depletions, and 30 percent channers

#### Substratum:

50 to 60 inches, yellowish brown firm channery silty clay loam, with gray iron depletions, and 15 percent channers

60 to 72 inches, yellowish brown firm very gravelly silty clay loam, with 40 percent gravel

Included in mapping are small areas of poorly drained Brinkerton soils in slight depressions and along drainageways, and Cavode soils which have more clay in the subsoil than the Portville soil. Also included are small areas of moderately well drained Buchanan soils in more sloping areas, and somewhat poorly drained soils which have bedrock within a depth of 40 inches. Included areas make up about 15 to 25 percent of this unit.

# Soil properties—

Permeability: Moderate or moderately slow in the surface and subsurface layers, and moderately slow or slow in the fragipan and substratum

Available water capacity: Very low to moderate

Soil reaction: Very strongly acid to moderately acid in the surface layer, subsurface layers and subsoil, and very strongly acid to slightly acid in the substratum Water table: Perched at a depth of 0.5 to 1.5 feet from November through May Flooding hazard: None

Depth to bedrock: More than 6 feet

Most of the acreage is in woodland or is idle land that is reverting to woodland. Some areas are used for small grain, corn, or hay grown in support of dairy farming. These areas generally are farmed at a low level of intensity.

This soil is moderately well suited to cultivated crops. Unless a drainage system is installed, planting is delayed in spring, and the soil can be used only for short-season annual crops, hay, or pasture. Harvesting crops during prolonged wet periods in fall is difficult. If drained and protected from erosion, the soil is suited to the crops commonly grown in the county. Interceptor drains can divert runoff from the higher adjacent soils, and tile and open-ditch drainage systems can remove excess water. Tile drains generally should be closely spaced because of the restricted permeability in the subsoil. Erosion can be controlled by stripcropping, farming on the contour, growing cover crops, and minimizing tillage. Incorporating crop residue into the soil and tilling only when the soil is at the proper moisture content improve tilth and help to maintain the content of organic matter.

This soil is well suited to water-tolerant hay and to late-spring pasture. Overgrazing and grazing when the soil is wet are the major concerns in managing pasture. Grazing when the soil is wet causes surface compaction, restricts plant growth, and can deplete the stand of pasture grasses, and thus result in serious erosion. Using proper stocking rates, rotating livestock grazing, deferring grazing when the soil is wet, controlling weeds and brush, and selecting water-tolerant species for seeding are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand the seasonal wetness grow best. Building logging roads and skid trails on the contour helps control erosion and minimizes gullying along the trails.

The depth to saturated zone, slope, and shrink-swell potential are the main limitations if this soil is used as a site for dwellings with basements. Installing drains around footings, and sealing foundations and basement walls will help to prevent excessive wetness in basements. Installing interceptor drains and diversion ditches in upslope areas diverts surface and subsurface water from the dwellings. Land grading and building on the contour help to overcome the slope limitation.

Depth to saturated zone, frost action, slope, and shrink-swell potential are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material, and installing roadside drainage systems help to increase soil strength and reduce the potential for frost action. Installing roadside drainage systems also reduces the wetness. Land grading and building on the contour help to overcome the slope limitation.

The depth to saturated zone, depth to dense material, and restricted permeability are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system in the area around the absorption field reduces the seasonal wetness, and adding permeable fill material helps to overcome the seasonal wetness and the restricted permeability.

Erosion is a serious hazard if the plant cover is removed during construction. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 3e

# 90A—Brinkerton silt loam, 0 to 3 percent slopes

This soil is nearly level, very deep, and poorly drained. It is along drainageways, on broad flats, and in small depressions on non-glaciated foot slopes of uplands. Individual areas are circular or oblong and range from 5 to 30 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface laver:

0 to 7 inches, very dark gray silt loam with 5 percent channers

## Subsoil:

- 7 to 12 inches, gray friable silty clay loam, with brown and strong brown iron accumulations and 5 percent channers
- 12 to 25 inches, gray friable silty clay loam, with strong brown iron accumulations and 5 percent channers
- 25 to 45 inches, grayish brown firm channery silt loam, with strong brown iron accumulations and 15 percent channers

### Substratum:

45 to 72 inches, brown firm channery silt loam, with strong brown iron accumulations and 15 percent channers

Included in mapping are small areas of Atkins and Portville soils. Atkins soils are silty throughout and are on flood plains. The somewhat poorly drained Portville soils are on the slightly higher rises and knolls. Also included are small areas of soils having a silty colluvial surface layer that is thicker than that of the Brinkerton soil, and small areas of poorly drained soils in depressions and along drainageways which do not have a fragipan. Included areas make up about 10 to 20 percent of this unit.

## Soil properties—

Permeability: Moderate in the surface layer, moderately slow in the upper part of the subsoil, and slow in the fragipan and substratum

Available water capacity: Very low to moderate

Soil reaction: Very strongly acid to moderately acid in the solum, and from strongly acid to slightly acid in the substratum

Water table: At the surface or within 0.5 foot of the surface from September through

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas support water-tolerant vegetation and trees. Some drained areas are used for cultivated crops or hay. This soil meets the requirements for hydric soils.

This soil is poorly suited to cultivated crops due to the seasonal high water table. Generally, the soil is in low depressions that are surrounded by better drained soils. Tilling only when the soil is at the proper moisture content, incorporating crop residue into the soil, and rotating crops improve tilth and help to maintain the content of organic matter. Tilling at the proper moisture content also minimizes compaction and clodding.

This soil is poorly suited to hay and pasture. The seasonal high water table restricts the growth of the roots of some forage crops. Prevention of overgrazing and restricted grazing when the soil is wet are the main concerns in managing pasture. If the pasture is grazed during wet periods, the surface layer can easily become compacted. Using proper stocking rates, selecting water-tolerant species for seeding, rotating livestock grazing, deferring grazing when the soil is wet, and controlling weeds and brush are the main management concerns.

The potential productivity of this soil for red maple is moderate. The hazard of off-road or off-trail erosion and the hazard of erosion on roads and trails are slight. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand the seasonal wetness grow best.

The depth to saturated zone and shrink-swell potential are the main limitations if this soil is used as a site for dwellings with basements or for local roads and streets. Frost action is also a limitation for local roads and streets. Building on raised coarse textured fill material, and installing a drainage system help to overcome these limitations. The soil is too wet for the construction of dwellings with basements without major modifications. Included areas of the somewhat poorly drained Portville soils may be better sites for dwellings.

The depth to saturated zone, depth to dense material, and restricted permeability are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Adjacent areas that are more suitable, should be considered for locating septic tank absorption fields.

In many areas this soil is well suited to wetland wildlife habitat and to the development of recreational ponds.

The capability subclass is 4w.

# 90B—Brinkerton silt loam, 3 to 8 percent slopes

This soil is gently sloping, very deep, and poorly drained. It is along drainageways, on colluvial toeslopes, and in small depressions on non-glaciated foot slopes of uplands. Individual areas are circular or oblong, and range from 5 to 30 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 7 inches, very dark gray silt loam with 5 percent channers

Subsoil

7 to 12 inches, gray friable silty clay loam, with brown and strong brown iron accumulations and 5 percent channers

- 12 to 25 inches, gray friable silty clay loam, with strong brown iron accumulations and 5 percent channers
- 25 to 45 inches, grayish brown firm channery silt loam, with strong brown iron accumulations and 15 percent channers

#### Substratum:

45 to 72 inches, brown firm channery silt loam, with strong brown iron accumulations and 15 percent channers

Included in mapping are small areas of Atkins and Portville soils. Atkins soils are silty throughout and are on flood plains. The somewhat poorly drained Portville soils are on the slightly higher rises and knolls. Also included are small areas of soils having a silty colluvial surface layer that is thicker than that of the Brinkerton soil, and small areas of poorly drained soils in depressions and along drainageways which do not have a fragipan. Included areas make up about 10 to 20 percent of this unit.

# Soil properties—

Permeability: Moderate in the surface layer, moderately slow in the upper part of the subsoil, and slow in the fragipan and substratum

Available water capacity: Very low to moderate

Soil reaction: Very strongly acid to moderately acid in the solum, and from strongly acid to slightly acid in the substratum

Water table: At the surface or within 0.5 foot of the surface from September through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas support water-tolerant vegetation and trees. Some drained areas are used for cultivated crops or hay. This soil meets the requirements for hydric soils.

This soil is poorly suited to cultivated crops. Generally, the soil is in low depressions that are surrounded by better drained soils. Tilling only when the soil is at the proper moisture content, incorporating crop residue into the soil, and rotating crops improve tilth and help to maintain the content of organic matter. Tilling at the proper moisture content also minimizes compaction and clodding.

This soil is poorly suited to hay and pasture. The seasonal high water table restricts the growth of the roots of some forage crops. Prevention of overgrazing, and restricted grazing when the soil is wet are the main concerns in managing pasture. If the pasture is grazed during wet periods, the surface layer can easily become compacted. Using proper stocking rates, selecting water-tolerant species for seeding, rotating livestock grazing, deferring grazing when the soil is wet, and controlling weeds and brush are the main management concerns.

The potential productivity of this soil for red maple is moderate. The hazard of offroad or off-trail erosion is slight and the hazard of erosion on roads and trails is moderate. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand the seasonal wetness grow best.

The depth to saturated zone and shrink-swell potential are the main limitations if this soil is used as a site for dwellings with basements and for local roads and streets. Frost action is also a limitation of this soil is used as a site for local roads and streets. Building on raised coarse textured fill material, and installing a drainage system help to overcome these limitations. The soil is too wet for the construction of dwellings with basements without major modifications. Included areas of the somewhat poorly drained Portville soils may be better sites for these dwellings.

The depth to saturated zone, depth to dense material, and restricted permeability are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems

are installed. Adjacent areas that are more suitable, should be considered for locating septic tank absorption fields.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

In many areas this soil is well suited to wetland wildlife habitat and to the development of recreational ponds.

The capability subclass is 4w.

# 91A—Palms muck, 0 to 2 percent slopes

This organic soil is nearly level, very deep, and very poorly drained. It is in basin like areas, bogs, and swamps on the lowest parts of the landscape. Most areas are adjacent to lakes. Individual areas are circular or oblong. They commonly are 10 to 50 acres in size, but range up to several hundred acres.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 12 inches, black muck

Subsoil:

12 to 32 inches, black slightly sticky muck

Substratum:

32 to 43 inches, gray non-sticky fine sandy loam

43 to 72 inches, gray slightly sticky gravelly loam, with 20 percent gravel

Included in mapping are small areas of Carlisle soils which are organic to a depth of more than 51 inches. Carlisle soils are near the center of the mapped hydric soil areas. Also included are Canandaigua soils which have a silty subsoil, and Alden soils in which gravel and stones are mixed with mineral material. The mineral included soils generally occur as narrow bands around the edges of the mapped areas. Included areas make up about 10 to 20 percent of this unit.

### Soil properties—

Permeability: Moderately slow to moderately rapid in the organic material, and moderately slow or moderate in the mineral substratum

Available water capacity: High

Soil reaction: Strongly acid to slightly alkaline in the organic material, and slightly acid to moderately alkaline in the mineral deposits

Water table: At the surface or within a depth of 1.0 foot throughout the year

Flooding hazard: None

Depth to bedrock: More than 6 feet

Ponding hazard: From 0.0 to 1.0 foot above the surface from November through May, and from 0.0 to 0.5 foot above the surface from June through October

Most areas support cattails and water-tolerant grasses, sedges, brush and trees. Some areas are cultivated or are used for hay or pasture. This soil meets the requirements for hydric soils.

In undrained areas this soil is not suited to farming. The soil is usually saturated throughout the year, and often has water ponded on the surface.

Undrained areas are poorly suited to hay and pasture, as the soil is usually saturated throughout the year, and often has water ponded on the surface. Surface compaction and trampling of the pasture are serious management concerns if these areas are grazed. Degradation of the wetland habitat is likely, if grazed.

The potential productivity of this soil for red maple is moderate. The hazard of offroad or off-trail erosion and the hazard of erosion on roads and trails are slight. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand the seasonal wetness grow best.

This soil is generally unsuited for dwellings with basements, local roads and streets, and for septic tank absorption fields. The depth to saturated zone, excess humus, frequent ponding, subsidence, and frost action are severe limitations for these uses.

These areas are generally well suited to wetland wildlife habitat.

The capability subclass is 5w.

# 92—Carlisle muck

This organic soil is nearly level, very deep, and very poorly drained. It is in bogs and swamps on the lowest parts of the landscape. Most areas are adjacent to lakes. Individual areas are circular or oval. They commonly range from 10 to 50 acres in size. Slopes generally are smooth, and range from 0 to 2 percent.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 15 inches, black friable muck

Subsoil

15 to 72 inches, black friable muck, with 15 percent woody fragments

Included in mapping are small areas of Palms muck and other Saprists. Palms soil is organic to a depth of less than 51 inches and is mainly at the edges of the mapped areas. Saprists units are organic deposits of variable depth generally covered with water 90 percent of the year. Included areas make up about 10 to 20 percent of this unit.

# Soil properties—

Permeability: Moderately slow to moderately rapid throughout the profile

Available water capacity: High

Soil reaction: Very strongly acid to slightly alkaline throughout the profile Water table: At the surface or within a depth of 1.0 foot throughout the year

Flooding hazard: None

Depth to bedrock: More than 6 feet

Ponding hazard: From 0.0 to 1.0 foot above the surface from September through June, and from 0.0 to 0.5 foot above the surface in July and August

Most areas support cattails and water-tolerant grasses, sedges, brush and trees. Some areas are used for vegetable gardens, if drained. This soil meets the requirements for hydric soils.

In undrained areas this soil is not suited to farming. The soil is usually saturated throughout the year, and often has water ponded on the surface.

Undrained areas are poorly suited to hay and pasture, as the soil is usually saturated throughout the year, and often has water ponded on the surface. Surface compaction and trampling of the pasture are serious management concerns if these areas are grazed. Degradation of the wetland habitat is likely, if grazed.

The potential productivity of this soil for red maple is moderate. The hazard of offroad or off-trail erosion and the hazard of erosion on roads and trails are slight. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand the seasonal wetness grow best.

This soil is generally unsuited for dwellings with basements, local roads and streets, and for septic tank absorption fields. The depth to saturated zone, excess humus, frequent ponding, subsidence, and frost action are severe limitations for these uses.

These areas are generally well suited to wetland wildlife habitat. The capability subclass is 5w.

# 93—Saprists, inundated

These level, very deep, very poorly drained soils commonly border lakes, ponds, and other bodies of water. They generally are called freshwater marsh. Shallow water is on the surface most of the year. The depth of the water on the soils fluctuates with the depth of the adjacent bodies of water. Individual areas are oblong or circular. They commonly range from 5 to 30 acres in size, but some are more than 75 acres. Slopes are 0 to 1 percent.

Saprists consist of black, sapric material 16 to 60 inches thick. The underlying mineral layers to a depth of 72 inches or more are gray or brown, mottled, sandy, silty, clayey or loamy deposits that include varying amounts of gravel. These soils are ponded.

Included in mapping are small areas of Carlisle and Palms muck. Carlisle soils are organic to a depth of more than 51 inches, and Palms soils are organic at a depth of 16 to 51 inches.

Most areas of this unit are in natural depressions. Some areas are manmade or are the result of beaver dam construction. The dominant vegetation is cattails, rushes and other water-tolerant, herbaceous plants. Most areas do not support trees, but water-tolerant species are common in some areas.

Onsite investigation is needed to determine the feasibility of using a particular area. Most areas provide excellent habitat for wetland wildlife: beaver, muskrat, fish and waterfowl (fig. 12). In some areas the habitat can be improved by constructing islands, building nesting boxes, and planting food-producing wetland shrubs.

The capability subclass is 8w.



Figure 12.—An area of Saprists, inundated, developed for improved wildlife habitat.

# 94B—Frewsburg silt loam, 3 to 8 percent slopes

This soil is gently sloping, moderately deep, and somewhat poorly drained. It is on broad hilltops, ridge benches and saddles in areas where the topography is influenced by the underlying bedrock. Shale and siltstone bedrock is at a depth of 20 to 40 inches. It occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are long and narrow, and range from 10 to 75 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 1 inch, very dark grayish brown silt loam with 10 percent channers

## Subsurface layer:

1 to 6 inches, yellowish brown friable silt loam, with strong brown iron accumulations and 5 percent channers

#### Subsoil:

6 to 18 inches, yellowish brown friable channery silty clay loam, with strong brown iron accumulations and gray iron depletions, and 15 percent channers

### Substratum:

- 18 to 38 inches, olive gray firm channery silty clay loam, with yellowish red and yellowish brown iron accumulations, and 25 percent channers
- 38 inches, dark yellowish brown, dark grayish brown, and strong brown shale bedrock

Included in mapping are small areas of poorly drained soils along drainageways and in slight depressions, and small areas of Ivory soils which contain more clay and are deeper than the Frewsburg soil. Also included are small areas of somewhat poorly drained Shongo soils which are very deep over bedrock, and small areas of soils that have a channery surface layer. Well drained Carrolton soils are included on slight rises and knolls. Included areas make up about 15 to 25 percent of this unit.

### Soil properties—

Permeability: Moderate in the surface and subsurface layers, and moderate or moderately slow in the subsoil and substratum

Available water capacity: Low to high

Soil reaction: Very strongly acid or strongly acid throughout the profile Water table: At a depth of 0.5 to 1.5 feet from November through May

Flooding hazard: None

Depth to bedrock: 20 to 40 inches

Most of the acreage is in woodland, or is idle land that is reverting to woodland. Where drained, this soil meets the requirements for prime farmland.

This soil is moderately well suited to most of the crops commonly grown in the county. Unless a drainage system is installed, planting is delayed in spring, harvesting may be difficult in fall, and the soil can be used only for short-season annual crops, hay, or pasture. Interceptor drains can divert runoff, and tile and open-ditch drainage systems can remove excess water. Installing subsurface drainage systems may be difficult because of the underlying bedrock. The growing season is shorter for this soil than for nearby valley soils at lower elevations. The use of short-season or early maturing crop varieties is recommended. Erosion is a hazard on long slopes that are intensively cultivated. Contour farming and stripcropping in combination with diversions, terraces, or grassed waterways help to control runoff and erosion. Rotating crops, incorporating crop residue into the soil, minimizing tillage, and growing cover crops help to maintain tilth and increase the content of organic matter.

Because of the natural acidity and low fertility, sufficient applications of fertilizer and lime are needed.

This soil is well suited to water-tolerant grasses and to late-spring pasture. Overgrazing and grazing when the soil is wet are the main concerns in managing pasture.

Grazing when the soil is wet causes surface compaction and restricts plant growth. Overgrazing can deplete the stand of pasture grasses, and thus result in serious erosion and puddling. Plants respond well to applications of lime and fertilizer. Using proper stocking rates, rotating livestock grazing, deferring grazing when the soil is wet, controlling weeds and brush, and selecting water-tolerant species for seeding are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is moderate. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand the seasonal wetness grow best.

The depth to saturated zone and depth to bedrock are the main limitations if this soil is used as a site for dwellings with basements. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary. Where outlets are available, installing drains around footings, and sealing foundations and basement walls help to prevent excessive wetness in basements.

The depth to saturated zone, frost action and depth to bedrock are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material, and installing roadside drainage systems increase soil strength and reduce the potential for frost action and wetness. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary.

The depth to saturated zone and the depth to bedrock are limitations on sites for septic tank absorption fields. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary. Care is needed to prevent the contamination of ground water resulting from seepage through the jointed and fractured bedrock. The absorption field should be installed in suitable fill material. Installing a drainage system in the area around the absorption field helps overcome the seasonal wetness.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 3w.

# 94C—Frewsburg silt loam, 8 to 15 percent slopes

This soil is strongly sloping, moderately deep, and somewhat poorly drained. It is on valley sides and ridge benches in areas where the topography is influenced by the underlying bedrock. Shale and siltstone bedrock is at a depth of 20 to 40 inches. It occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are long and narrow and range from 10 to 50 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 1 inch, very dark grayish brown silt loam with 10 percent channers

Subsurface layer:

1 to 6 inches, yellowish brown friable silt loam, with strong brown iron accumulations and 5 percent channers

### Subsoil:

6 to 18 inches, yellowish brown friable channery silty clay loam, with strong brown iron accumulations and gray iron depletions, and 15 percent channers

#### Substratum:

18 to 38 inches, olive gray firm channery silty clay loam, with yellowish red and yellowish brown iron accumulations, and 25 percent channers38 inches, dark yellowish brown, dark grayish brown, and strong brown shale bedrock

Included in mapping are small areas of poorly drained soils along drainageways and in slight depressions, and small areas of Ivory soils which contain more clay and are deeper than the Frewsburg soil. Also included are small areas of somewhat poorly drained Shongo soils which are very deep over bedrock, and small areas that have a channery surface layer. Well drained Carrolton soils are included on slight rises and knolls. Included areas make up about 15 to 25 percent of this unit.

### Soil properties—

Permeability: Moderate in the surface and subsurface layer, and moderate or moderately slow in the subsoil and substratum

Available water capacity:Low to high

Soil reaction: Very strongly acid or strongly acid throughout the profile Water table: At a depth of 0.5 to 1.5 feet from November through May

Flooding hazard: None

Depth to bedrock: 20 to 40 inches

Most of the acreage is in woodland, or is idle land that is reverting to woodland. This soil is moderately well suited to most of the crops commonly grown in the county. Unless a drainage system is installed, planting is delayed in spring, harvesting may be difficult in fall, and the soil can be used only for short-season annual crops, hay, or pasture. Interceptor drains can divert runoff, and tile and open-ditch drainage systems can remove excess water. Installing subsurface drainage systems may be difficult because of the underlying bedrock. The growing season is shorter for this soil than for nearby valley soils at lower elevations. The use of short-season or early maturing crop varieties is recommended. Erosion is a hazard on areas that are intensively cultivated. Contour farming and stripcropping in combination with diversions, terraces, or grassed waterways help to control runoff and erosion. Rotating crops, incorporating crop residue into the soil, minimizing tillage, and growing cover crops help to maintain tilth and increase the content of organic matter. Because of the natural acidity and low fertility, sufficient applications of fertilizer and lime are needed.

This soil is well suited to water-tolerant grasses and to late-spring pasture. Overgrazing and grazing when the soil is wet are the main concerns in managing pasture.

Grazing when the soil is wet causes surface compaction and restricts plant growth. Overgrazing can deplete the stand of pasture grasses, and thus result in serious erosion and puddling. Plants respond well to applications of lime and fertilizer. Using proper stocking rates, rotating livestock grazing, deferring grazing when the soil is wet, controlling weeds and brush, and selecting water-tolerant species for seeding are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand the seasonal wetness grow best. Building logging roads and skid trails on the contour helps control erosion and minimizes gullying along the trails.

The depth to saturated zone, the depth to bedrock and slope are the main limitations on sites for dwellings with basements. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary. Where outlets are available, installing drains around footings and sealing foundations and basement walls help to prevent excessive wetness in basements. Land grading and building on the contour help to overcome the slope limitation.

The depth to saturated zone, frost action, depth to bedrock and slope are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material, and installing roadside drainage systems increase soil strength and reduce the potential for frost action and wetness. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary. Land grading and building on the contour help to overcome the slope limitation.

The depth to saturated zone and the depth to bedrock are limitations if this soil is used as a site for septic tank absorption fields. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary. Care is needed to prevent the contamination of ground water resulting from seepage through the jointed and fractured bedrock. The absorption field should be installed in suitable fill material. Installing a drainage system in the area around the absorption field helps to overcome the seasonal wetness.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 3e.

# 95B—Mandy channery silt loam, 3 to 8 percent slopes

This soil is gently sloping, moderately deep, and well drained. It is on convex hilltops and ridge benches in areas where the topography is influenced by the underlying bedrock. Sandstone and siltstone bedrock is at a depth of 20 to 40 inches. It occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are oblong, and range from 10 to 30 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 2 inches, very dark brown channery silt loam 20 percent channers

Subsoil:

2 to 13 inches, strong brown very friable channery silt loam, with 30 percent channers 13 to 24 inches, yellowish brown friable very channery silt loam, with 50 percent channers

24 to 33 inches, yellowish brown very friable extremely flaggy silt loam, with 65 percent flagstones and channers

33 inches, fractured siltstone and sandstone bedrock

Included in mapping are small areas of moderately well drained soils, and well drained Carrollton soils which have less rock fragments in the subsoil and more clay than Mandy soils. Well drained Kinzua soils are included where the bedrock is deeper than 40 inches below the surface. Mandy soils which have a silt loam surface layer are present in spots. Also included are areas where the bedrock is within 20 inches of the surface. Included areas make up about 10 to 20 percent of this unit.

# Soil properties—

Permeability: Moderate throughout the profile Available water capacity: Very low to moderate

Soil reaction: Extremely acid to strongly acid throughout the profile

Water table: At a depth of more than 6 feet

Flooding hazard: None

Depth to bedrock: 20 to 40 inches

Most areas are wooded, but some small areas have been cleared and are used for row crops, alfalfa, hay or pasture. The row crops are grown in support of dairy farming. Small woodlots are in some areas, and some of the acreage is idle land that is reverting to brush.

This soil is moderately well suited to most of the crops commonly grown in the county. The crops that are planted early in spring and deep-rooted perennial crops, such as alfalfa, grow especially well. The growing season is shorter on this soil than for nearby valley soils. The use of short-season or early maturing crop varieties is recommended. Lime is needed for most crops, especially legumes. Crops respond well to sufficient applications of fertilizer. Erosion is a hazard if the soil is intensively cultivated and is not protected by a plant cover. Incorporating crop residue into the soil, minimizing tillage, and growing cover crops help to maintain tilth and control erosion. Farming on the contour and stripcropping help to control erosion and conserve water during the growing season. In areas of this unit where bedrock is shallower, droughtiness is common in mid summer and may restrict crop growth.

This soil is well suited to hay and pasture. It is especially suitable for grazing early in the growing season. Overgrazing can restrict plant growth and increase the hazard of erosion. Deep-rooted legumes grow well, but applications of lime and fertilizer are required to maintain the quality of the stands and to ensure good plant growth. Using proper stocking rates, rotating livestock grazing, and controlling weeds and brush by mowing annually are the main management concerns.

The potential productivity of this soil for northern red oak is moderately high. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is moderate. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival.

The depth to bedrock in the soil is the main limitation if this soil is used as sites for dwellings with basements. Hard bedrock may make excavation difficult, and blasting may be necessary.

Depth to bedrock and frost action are the main limitations if this soil is used as a site for local roads and streets. Careful planning in layout of roads and streets may help to overcome the limitation due to depth to bedrock, and minimize excavation. Adding coarse textured subgrade or base material increases soil strength and reduces the potential for frost action.

Depth to bedrock is a limitation if this soil is used as a site for septic tank absorption fields. Bedrock can make excavation difficult and costly. Care is needed to prevent the contamination of ground water resulting from seepage through the jointed and fractured bedrock. The absorption field should be installed in suitable fill material.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 2e.

# 95C—Mandy channery silt loam, 8 to 15 percent slopes

This soil is strongly sloping, moderately deep, and well drained. It is on valley sides and ridge benches in areas where the topography is influenced by the underlying bedrock. Sandstone and siltstone bedrock is at a depth of 20 to 40 inches. It occurs at

elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are oblong, and range from 10 to 30 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows— Surface layer:

0 to 2 inches, very dark brown channery silt loam 20 percent channers

### Subsoil:

2 to 13 inches, strong brown very friable channery silt loam, with 30 percent channers 13 to 24 inches, yellowish brown friable very channery silt loam, with 50 percent channers

24 to 33 inches, yellowish brown very friable extremely flaggy silt loam, with 65 percent flagstones and channers

33 inches, fractured siltstone and sandstone bedrock

Included in mapping are small areas of moderately well drained soils, and well drained Carrollton soils which have less rock fragments in the subsoil and more clay than Mandy soils. Well drained Kinzua soils are included where the bedrock is deeper than 40 inches below the surface. Mandy soils which have a silt loam surface layer are present in spots. Also included are areas where the bedrock is within 20 inches of the surface. Included areas make up about 10 to 20 percent of this unit.

## Soil properties—

Permeability: Moderate throughout the profile Available water capacity: Very low to moderate

Soil reaction: Extremely acid to strongly acid throughout the profile

Water table: At a depth of more than 6 feet

Flooding hazard: None

Depth to bedrock: 20 to 40 inches

Most of the acreage is in woodland, or is idle land that is reverting to brush. Some areas have been cleared and are used for row crops, alfalfa, hay or pasture. The row crops are grown in support of dairy farming.

This soil is moderately well suited to most of the crops commonly grown in the county. The growing season is shorter on this soil than for nearby valley soils. The use of short-season or early maturing crop varieties is recommended. The crops that are planted early in spring and deep-rooted perennial crops, such as alfalfa, grow especially well. Erosion is a serious hazard in intensively cultivated areas. Contour farming and stripcropping in combination with diversions, terraces, and grassed waterways, help to control erosion. Incorporating crop residue into the soil, minimizing tillage, including sod crops in the crop rotation, and growing cover crops help to maintain tilth and increase the content of organic matter. Crops respond well to applications of lime and fertilizer. Legumes respond especially well. In areas of this unit where bedrock is shallower, droughtiness is common in mid summer and may restrict crop growth.

This soil is well suited to hay and pasture. It is especially suitable for grazing early in the growing season. Overgrazing can restrict plant growth and increase the hazard of erosion. Deep-rooted legumes grow well, but applications of lime and fertilizer are required to maintain the quality of stands and to ensure good plant growth. Using proper stocking rates, rotating livestock grazing, and controlling weeds and brush by mowing annually are the main management concerns.

The potential productivity of this soil for northern red oak is moderately high. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is moderate. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival.

The depth to bedrock and slope are the main limitations if this soil is used as a site for dwellings with basements. Bedrock can make excavation difficult and costly.

Blasting may be necessary. Land grading and building on the contour help to overcome the slope limitation.

Slope, frost action, and depth to bedrock are the main limitations if this soil is used as a site for local roads and streets. Careful planning in layout of roads and streets may help to overcome the limitation due to depth to bedrock and minimize excavation. Adding coarse textured subgrade or base material increase soil strength and reduce the potential for frost action.

Depth to bedrock is a limitation on sites for septic tank absorption fields. Bedrock can make excavation difficult and costly. Care is needed to prevent the contamination of ground water resulting from seepage through the jointed and fractured bedrock. The absorption field should be installed in suitable fill material.

Erosion is serious hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 3e.

# 95D—Mandy channery silt loam, 15 to 25 percent slopes

This soil is moderately steep, moderately deep, and well drained. It is on uniformly sloping valley sides in areas where the topography is influenced by the underlying bedrock. Sandstone and siltstone bedrock is at a depth of 20 to 40 inches. It occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are oblong or rectangular, and range from 15 to 75 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 2 inches, very dark brown channery silt loam 20 percent channers

Subsoil:

2 to 13 inches, strong brown very friable channery silt loam, with 30 percent channers 13 to 24 inches, yellowish brown friable very channery silt loam, with 50 percent channers

24 to 33 inches, yellowish brown very friable extremely flaggy silt loam, with 65 percent flagstones and channers

33 inches, fractured siltstone and sandstone bedrock

Included in mapping are small areas of moderately well drained soils, and well drained Carrollton soils which have less rock fragments in the subsoil and more clay than Mandy soils. Well drained Kinzua soils are included where the bedrock is deeper than 40 inches below the surface. Mandy soils which have a silt loam surface layer are present in spots. Also included are areas where the bedrock is within 20 inches of the surface. Included areas make up about 10 to 20 percent of this unit.

### Soil properties—

Permeability: Moderate throughout the profile Available water capacity: Very low to moderate

Soil reaction: Extremely acid to strongly acid throughout the profile

Water table: At a depth of more than 6 feet

Flooding hazard: None

Depth to bedrock: 20 to 40 inches

Most of the acreage is in woodland, or is idle land that is reverting to brush. Some areas are used for hay or pasture.

This soil is poorly suited to cultivated crops because of the severe hazard of erosion and the slope. The growing season is shorter on this soil than for nearby

valley soils. Operating farm equipment is difficult and hazardous because of the slope. Erosion is a serious hazard in cultivated areas. Cultivated crops should be grown only occasionally, and the maximum number of conservation practices should be used. Minimizing tillage, growing cover crops, incorporating crop residue into the soil, tilling across the slope, stripcropping, and including sod crops in the cropping system help to maintain good tilth, increase the content of organic matter, and control erosion. Sufficient applications of lime and fertilizer are needed to maintain crop growth. In areas of this unit where bedrock is shallower, droughtiness is common in mid summer and may restrict crop growth.

This soil is moderately well suited to hay and pasture. It is especially suitable for grazing early in the growing season. Overgrazing can restrict plant growth and increase the hazard of erosion. Deep-rooted legumes grow well, but applications of lime and fertilizer are required to maintain the quality of stands and to ensure good plant growth. If plowing is necessary to establish a plant cover, plowing across the slope and leaving strips of sod help to control runoff. Using proper stocking rates, rotating livestock grazing, and controlling weeds and brush by mowing annually are the main management concerns.

The potential productivity of this soil for northern red oak is moderately high. The hazard of off-road or off-trail erosion is moderate and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival.

The depth to bedrock and slope are the main limitations if this soil is used as a site for dwellings with basements. Bedrock can make excavation difficult and costly. Blasting may be necessary. Land grading and building on the contour help to overcome the slope limitation.

Slope, frost action, and depth to bedrock are the main limitation if this soil is used as a site for local roads and streets. Careful planning in layout of roads and streets may help to overcome the limitations due to slope and depth to bedrock, and minimize grading and excavation. Adding coarse textured subgrade or base material increase soil strength and reduce the potential for frost action.

Depth to bedrock and slope are limitations if this soil is used as a site for septic tank absorption fields. Bedrock can make excavation difficult and costly. Care is needed to prevent the contamination of ground water resulting from seepage through the jointed and fractured bedrock. The absorption field should be installed in suitable fill material. Extensive engineering, design modifications and land shaping are necessary to overcome the limitations imposed by slope.

Erosion is a serious hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 4e.

# 95E—Mandy channery silt loam, 25 to 35 percent slopes

This soil is steep, moderately deep, and well drained. It is on uniformly sloping valley sides in areas where the topography is influenced by the underlying bedrock. Sandstone and siltstone bedrock is at a depth of 20 to 40 inches. It occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are oblong or rectangular, and range from 15 to 75 acres in size

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 2 inches, very dark brown channery silt loam 20 percent channers

Subsoil:

2 to 13 inches, strong brown very friable channery silt loam, with 30 percent channers 13 to 24 inches, yellowish brown friable very channery silt loam, with 50 percent channers

24 to 33 inches, yellowish brown very friable extremely flaggy silt loam, with 65 percent flagstones and channers

33 inches, fractured siltstone and sandstone bedrock

Included in mapping are small areas of moderately well drained soils, and well drained Carrollton soils which have less rock fragments in the subsoil and more clay than Mandy soils. Well drained Kinzua soils are included where the bedrock is deeper than 40 inches below the surface. Mandy soils which have a silt loam surface layer are present in spots. Also included are areas where the bedrock is within 20 inches of the surface. Included areas make up about 10 to 20 percent of this unit.

## Soil properties—

Permeability: Moderate throughout the profile Available water capacity: Very low to moderate

Soil reaction: Extremely acid to strongly acid throughout the profile

Water table: At a depth of more than 6 feet

Flooding hazard: None

Depth to bedrock: 20 to 40 inches

Most areas are used as woodland. Some areas are used for pasture.

This soil is not suited to cultivated crops or hay because of the slope and very severe hazard of erosion. Operating farm equipment is very difficult because of the slope.

The suitability of this soil for pasture is limited. A good plant cover is needed. Prevention of overgrazing helps protect the soil from erosion and gullying. Reseeding pastures is difficult because of the slope.

The potential productivity of this soil for northern red oak is moderately high. The hazard of off-road or off-trail erosion is moderate and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building logging roads and skid trails on the contour helps control erosion and minimizes gullying along the trails.

The slope and the restricted depth to bedrock are the main limitations if this soil is used as a site for dwellings with basements. Extensive modification may be necessary to overcome the slope. Bedrock can make excavation difficult and costly. Blasting may be necessary. Installing drains around footings helps to remove lateral seepage moving through fractures in the bedrock.

Slope, frost action, and depth to bedrock are the main limitation if this soil is used as a site for local roads and streets. Careful planning in layout of roads and streets may help to overcome the limitations due to slope and depth to bedrock, and minimize grading and excavation. Adding coarse textured subgrade or base material will increase soil strength, and reduce the potential for frost action.

Depth to bedrock and slope are limitations if this soil is used as a site for septic tank absorption fields. Bedrock can make excavation difficult and costly. Care is needed to prevent the contamination of ground water resulting from seepage through the jointed and fractured bedrock. Extensive engineering, design modifications and land shaping are necessary to overcome the limitations imposed by slope.

Erosion is a serious hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 6e.

# 95F—Mandy channery silt loam, 35 to 50 percent slopes

This soil is very steep, moderately deep, and well drained. It is on uniformly sloping valley sides in areas where the topography is influenced by the underlying bedrock. Sandstone and siltstone bedrock is at a depth of 20 to 40 inches. It occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are oblong or rectangular, and range from 15 to 75 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 2 inches, very dark brown channery silt loam 20 percent channers

Subsoil:

2 to 13 inches, strong brown very friable channery silt loam, with 30 percent channers 13 to 24 inches, yellowish brown friable very channery silt loam, with 50 percent channers

24 to 33 inches, yellowish brown very friable extremely flaggy silt loam, with 65 percent flagstones and channers

33 inches, fractured siltstone and sandstone bedrock

Included in mapping are small areas of moderately well drained soils, and well drained Carrollton soils which have less rock fragments in the subsoil and more clay than Mandy soils. Well drained Kinzua soils are included where the bedrock is deeper than 40 inches below the surface. Mandy soils which have a silt loam surface layer are present in spots. Also included are areas where the bedrock is within 20 inches of the surface. Included areas make up about 10 to 20 percent of this unit.

## Soil properties—

Permeability: Moderate throughout the profile Available water capacity: Very low to moderate

Soil reaction: Extremely acid to strongly acid throughout the profile

Water table: At a depth of more than 6 feet

Flooding hazard: None

Depth to bedrock: 20 to 40 inches

Most areas are wooded and provide wildlife habitat.

This soil is not suited to cultivated crops, hay, or pasture. The very steep slopes and very severe hazard of erosion are the main management concerns. The soil is too steep for the safe operation of farm equipment. The growing season is shorter for this soil than for nearby valley soils at lower elevations. A plant cover that controls runoff and erosion is essential.

The potential productivity of this soil for northern red oak is moderately high. The hazard of off-road or off-trail erosion and the hazard of erosion on roads and trails are severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building logging roads and skid trails on the contour helps control erosion and minimizes gullying along the trails.

The slope and the depth to bedrock are the main limitations if this soil is used as a site for dwellings with basements. Extensive modification may be necessary to overcome the slope. Bedrock can make excavation difficult and costly. Blasting may be necessary. Alternative sites should be considered for this use.

Slope, frost action, and depth to bedrock are the main limitations if this soil is used as a site for local roads and streets. Extensive land modification and leveling may be necessary to overcome the slope limitation. Adding coarse textured subgrade or base material reduces the potential for frost action. Hard bedrock can make excavation

difficult and costly, and blasting may be necessary. Alternative sites should be considered for this use.

The depth to bedrock and the very steep slope are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are necessary to overcome the slope limitation. Alternative sites should be considered for this use.

Erosion is a very severe hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible. In most areas the native plant cover should not be removed.

The capability subclass is 7e.

# 96B—Carrollton channery silt loam, 3 to 8 percent slopes

This soil is gently sloping, moderately deep, and well drained. It is on convex areas of broad hilltops in areas where the topography is influenced by the underlying bedrock. Shale, siltstone or fine-grained sandstone bedrock is at a depth of 20 to 40 inches. It occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are oblong or circular, and range from 5 to 30 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 2 inches, very dark grayish brown channery silt loam with 15 percent channers

### Subsoil:

2 to 17 inches, brown friable channery silt loam, with 20 percent channers 17 to 23 inches, yellowish brown friable channery silt loam with 25 percent channers

### Substratum:

23 to 30 inches, yellowish brown friable channery silt loam with 30 percent channers 30 inches, olive shale bedrock

Included in mapping are areas of soils that are similar to Carrollton, but are moderately well drained, and small areas of the somewhat poorly drained Frewsburg soils along drainageways and in seepage spots. Areas of well drained Mandy soils are included where there are more rock fragments in the soil. Small areas of Kinzua and Elko soils are also included, which are more than 40 inches deep over bedrock. Included areas make up about 15 to 25 percent of the unit.

### Soil properties—

Permeability: Moderate throughout the profile Available water capacity: Low to moderate

Soil reaction: Very strongly acid or strongly acid throughout the profile Water table: At a depth of 2.0 to 3.3 feet from November through May

Flooding hazard: None

Depth to bedrock: 20 to 40 inches

Many areas that were formerly cleared for crop production are now idle and are reverting to brush and trees. Some areas are used for crops or pasture. The remaining areas are wooded. This soil meets the requirements for prime farmland.

The soil is moderately well suited to most of the crops commonly grown in the county. The growing season is shorter for this soil than for nearby valley soils at lower elevations. The use of short-season or early maturing crop varieties is recommended. Erosion is a moderate hazard on long slopes in intensively cultivated areas. Installing subsurface drains commonly is difficult in wet included areas because of depth to

bedrock. Contour farming and stripcropping in combination with diversions, terraces, or grassed waterways help to control erosion. Incorporating crop residue into the soil, rotating crops, minimizing tillage, and growing cover crops help to maintain tilth, increase the content of organic matter, and control erosion. Crops respond well to sufficient applications of lime and fertilizer. Droughtiness is a limitation in some years.

This soil is well suited to hay and early spring pasture. Overgrazing restricts plant growth and can deplete the stand of desirable pasture plants, especially in dry years. Erosion is a hazard in overgrazed areas. Using proper stocking rates, rotating livestock grazing, controlling weeds and brush by mowing annually and applying sufficient fertilizer are the main management concerns.

The potential productivity of this soil for northern red oak is moderately high. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is moderate. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival.

The depth to bedrock is the main limitation if this soil is used as a site for dwellings with basements. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary. Installing drains around footings helps to remove any lateral seepage through fractures in the bedrock.

Frost action and depth to bedrock are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material reduces the potential for frost action. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary.

The depth to bedrock and depth to saturated zone are limitations on sites for septic tank absorption fields. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary. Care is needed to prevent the contamination of ground water resulting from seepage through the jointed and fractured bedrock. The absorption field should be installed in suitable fill material. Installing a drainage system in the area around the absorption field helps to overcome the seasonal wetness.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 2e.

# 96C—Carrollton channery silt loam, 8 to 15 percent slopes

This soil is strongly sloping, moderately deep, and well drained. It is on convex areas of broad hilltops in areas where the topography is influenced by the underlying bedrock. Shale, siltstone or fine-grained sandstone bedrock is at a depth of 20 to 40 inches. It occurs at elevations above 1800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are oblong or circular, and range from 5 to 30 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 2 inches, very dark grayish brown channery silt loam with 15 percent channers

Subsoil:

2 to 17 inches, brown friable channery silt loam, with 20 percent channers 17 to 23 inches, yellowish brown friable channery silt loam with 25 percent channers

### Substratum:

23 to 30 inches, yellowish brown friable channery silt loam with 30 percent channers 30 inches, olive shale bedrock

Included in mapping are areas of soils that are similar to Carrollton, but are moderately well drained, and small areas of the somewhat poorly drained Frewsburg soils along drainageways and in seepage spots. Areas of well drained Mandy soils are included where there are more rock fragments in the soil. Small areas of Kinzua and Onoville soils are also included, which are more than 40 inches deep over bedrock. Included areas make up about 15 to 25 percent of the unit.

## Soil properties—

Permeability: Moderate throughout the profile Available water capacity: Low or moderate

Soil reaction: Very strongly acid or strongly acid throughout the profile

Water table: At a depth of more than 6 feet

Flooding hazard: None

Depth to bedrock: 20 to 40 inches

Many areas that were formerly cleared for crop production are now idle, and are reverting to brush and trees. Some areas are used for crops or pasture. The remaining areas are wooded.

The soil is moderately well suited to most of the crops commonly grown in the county. The growing season is shorter for this soil than for nearby valley soils at lower elevations. The use of short-season or early maturing crop varieties is recommended. Erosion is a hazard in intensively cultivated areas. Installing subsurface drains commonly is difficult in the wetter included areas because of depth to bedrock. Contour farming and stripcropping in combination with diversions, terraces, or grassed waterways help to control erosion. Incorporating crop residue into the soil, rotating crops, minimizing tillage, and growing cover crops help to maintain tilth, increase the content of organic matter, and control erosion. Crops respond well to sufficient applications of lime and fertilizer. Droughtiness is a limitation in some years.

This soil is well suited to hay and early spring pasture. Overgrazing restricts plant growth and can deplete the stand of desirable pasture plants, especially in dry years. Erosion is a hazard in overgrazed areas. Using proper stocking rates, rotating livestock grazing, controlling weeds and brush by mowing annually, and applying sufficient fertilizer are the main management concerns.

The potential productivity of this soil for northern red oak is moderately high. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building logging roads and skid trails on the contour helps control erosion and minimizes gullying along the trails.

The depth to bedrock and the slope are the main limitations if this soil is used as a site for dwellings with basements. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary. Installing drains around footings helps to remove any lateral seepage through fractures in the bedrock. Land grading and building on the contour help to overcome the slope limitation.

Frost action, slope, and depth to bedrock are the main limitations if this soil is used as a site for local roads and streets. Extensive land modification and leveling may be necessary to overcome the slope limitation. Adding coarse textured subgrade or base material reduces the potential for frost action. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary.

The depth to bedrock is a limitation if this soil is used as a site for septic tank absorption fields. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary. Care is needed to prevent the contamination of ground water resulting from seepage through the jointed and fractured bedrock. The absorption field should be installed in suitable fill material.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 3e.

# 96D—Carrollton channery silt loam, 15 to 25 percent slopes

This soil is moderately steep, moderately deep, and well drained. It is on uniformly sloping valley sides in areas where the topography is influenced by the underlying bedrock. Shale, siltstone, or fine-grained sandstone bedrock is at a depth of 20 to 40 inches. It occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are long and narrow, and range from 10 to 50 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 2 inches, very dark grayish brown channery silt loam with 15 percent channers

### Subsoil:

2 to 17 inches, brown friable channery silt loam, with 20 percent channers 17 to 23 inches, yellowish brown friable channery silt loam with 25 percent channers

### Substratum:

23 to 30 inches, yellowish brown friable channery silt loam with 30 percent channers 30 inches, olive shale bedrock

Included in mapping are areas of soils that are similar to Carrollton, but are moderately well drained, and small areas of the somewhat poorly drained Frewsburg soils along drainageways and in seepage spots. Areas of well drained Mandy soils are included where there are more rock fragments in the soil. Small areas of Kinzua and Onoville soils are also included, which are more than 40 inches deep over bedrock. Included areas make up about 15 to 25 percent of the unit.

### Soil properties—

Permeability: Moderate throughout the profile Available water capacity: Low or moderate

Soil reaction: Very strongly acid or strongly acid throughout the profile

Water table: At a depth of more than 6 feet

Flooding hazard: None

Depth to bedrock: 20 to 40 inches

Most areas are used as woodland. Some areas are used for hay or pasture or for row crops grown in support of dairy farming.

This soil is poorly suited to cultivated crops because of the hazard of erosion and the slope. The growing season is shorter for this soil than for nearby valley soils at lower elevations. The use of short-season or early maturing crop varieties is recommended. Cultivated crops should be grown only occasionally, and the maximum number of conservation practices should be used. Minimizing tillage, growing cover crops, incorporating crop residue into the soil, tilling across the slope,

stripcropping, and including sod crops in the cropping system help to maintain good tilth, increase the content of organic matter, and control erosion. Because of the slope, operating farm machinery is difficult and hazardous on this soil. Droughtiness is a limitation in some years.

This soil is better suited to hay and pasture than to cultivated crops. Overgrazing restricts plant growth and can deplete the stand of desirable pasture plants, especially in dry years. Erosion is a hazard in overgrazed areas. Using proper stocking rates, rotating livestock grazing, and controlling weeds and brush by mowing annually are the main management concerns. Because the soil is naturally acid, applications of lime are needed to improve the growth of most pasture plants.

The potential productivity of this soil for northern red oak is moderately high. The hazard of off-road or off-trail erosion is moderate and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building logging roads and skid trails on the contour helps to control erosion and minimizes gullying along the trails.

The slope and the depth to bedrock are the main limitations if this soil is used as a site for dwellings with basements. Extensive land modification may be necessary to overcome the slope. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary. Installing drains around footing helps to remove any lateral seepage moving through fractures in the bedrock.

Slope, frost action, and depth to bedrock are the main limitations if this soil is used as a site for local roads and streets. Extensive land modification and leveling may be necessary to overcome the slope limitation. Adding coarse textured subgrade or base material reduces the potential for frost action. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary.

The depth to bedrock and the slope are limitations if this soil is used as site for septic tank absorption fields. Extensive engineering and design modifications may be necessary to overcome the slope. Care is needed to prevent the contamination of ground water resulting from seepage through the jointed and fractured bedrock. The absorption field should be installed in suitable fill material.

Erosion is a serious hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 4e.

# 96E—Carrollton channery silt loam, 25 to 35 percent slopes

This soil is steep, moderately deep, and well drained. It is on uniformly sloping valley sides in areas where the topography is influenced by the underlying bedrock. Shale, siltstone or fine-grained sandstone bedrock is at a depth of 20 to 40 inches. It occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are long and narrow, and range from 10 to 50 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 2 inches, very dark grayish brown channery silt loam with 15 percent channers

### Subsoil

2 to 17 inches, brown friable channery silt loam, with 20 percent channers 17 to 23 inches, yellowish brown friable channery silt loam with 25 percent channers

### Substratum:

23 to 30 inches, yellowish brown friable channery silt loam with 30 percent channers 30 inches, olive shale bedrock

Included in mapping are areas of soils that are similar to Carrollton, but are moderately well drained, and small areas of the somewhat poorly drained Frewsburg soils along drainageways and in seepage spots. Areas of well drained Mandy soils are included where there are more rock fragments in the soil. Small areas of Kinzua and Onoville soils are also included, which are more than 40 inches deep over bedrock. Included areas make up about 15 to 25 percent of the unit.

## Soil properties—

Permeability: Moderate throughout the profile Available water capacity: Low or moderate

Soil reaction: Very strongly acid or strongly acid throughout the profile

Water table: At a depth of more than 6 feet

Flooding hazard: None

Depth to bedrock: 20 to 40 inches

Most areas are used as woodland. Some areas are used for pasture.

This soil is not suited to cultivated crops or hay because of the steep slope and very severe hazard of erosion. Operating farm equipment is very difficult because of the slope. The growing season is shorter for this soil than for nearby valley soils at lower elevations.

The suitability of this soil for pasture is limited. A good plant cover is needed. Prevention of overgrazing helps protect the soil from erosion and gullying. Reseeding pastures is difficult because of the slope.

The potential productivity of this soil for northern red oak is moderately high. The hazard of off-road or off-trail erosion is moderate and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building logging roads and skid trails on the contour helps to control erosion and minimizes gullying along the trails.

The slope and the depth to bedrock are the main limitations if this soil is used as a site for dwellings with basements. Extensive land modification may be necessary to overcome the slope. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary. Installing drains around footing helps to remove any lateral seepage moving through fractures in the bedrock.

Slope, frost action, and depth to bedrock are the main limitations if this soil is used as a site for local roads and streets. Extensive land modification and leveling may be necessary to overcome the slope limitation. Adding coarse textured subgrade or base material reduces the potential for frost action. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary.

The depth to bedrock and the slope are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications may be necessary to overcome the slope. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary. Care is needed to prevent the contamination of ground water resulting from seepage through the jointed and fractured bedrock. The absorption field should be installed in suitable fill material.

Erosion is a serious hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 6e.

# 96F—Carrollton channery silt loam, 35 to 50 percent slopes

This soil is very steep, moderately deep, and well drained. It is on uniformly sloping valley sides in areas where the topography is influenced by the underlying bedrock. Shale, siltstone or fine-grained sandstone bedrock is at a depth of 20 to 40 inches. It occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are long and narrow, and range from 10 to 50 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 2 inches, very dark grayish brown channery silt loam with 15 percent channers

Subsoil:

2 to 17 inches, brown friable channery silt loam, with 20 percent channers 17 to 23 inches, yellowish brown friable channery silt loam with 25 percent channers

Substratum:

23 to 30 inches, yellowish brown friable channery silt loam with 30 percent channers 30 inches, olive shale bedrock

Included in mapping are areas of soils that are similar to Carrollton, but are moderately well drained, and small areas of the somewhat poorly drained Frewsburg soils along drainageways and in seepage spots. Areas of well drained Mandy soils are included where there are more rock fragments in the soil. Small areas of Kinzua and Onoville soils are also included, which are more than 40 inches deep over bedrock. Included areas make up about 15 to 25 percent of the unit.

# Soil properties—

Permeability: Moderate throughout the profile Available water capacity: Low or moderate

Soil reaction: Very strongly acid or strongly acid throughout the profile

Water table: At a depth of more than 6 feet

Flooding hazard: None

Depth to bedrock: 20 to 40 inches

Most areas are wooded and provide wildlife habitat.

This soil is not suited to cultivated crops, hay, or pasture. The very steep slope and very severe hazard of erosion are the main management concerns. The soil is too steep for the safe operation of farm equipment. The growing season is shorter for this soil than for nearby valley soils at lower elevations. A plant cover that controls runoff and erosion is essential.

The potential productivity of this soil for northern red oak is moderately high. The hazard of off-road or off-trail erosion and the hazard of erosion on roads and trails are severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building logging roads and skid trails on the contour helps to control erosion and minimizes gullying along the trails.

The slope and the depth to bedrock are the main limitations if this soil is used as a site for dwellings with basements. Extensive land modification may be necessary to overcome the slope. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary. Alternative sites should be considered for this use.

Slope, frost action, and depth to bedrock are the main limitations if this soil is used as a site for local roads and streets. Extensive land modification and leveling may be necessary to overcome the slope limitation. Adding coarse textured subgrade or base

material reduces the potential for frost action. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary. Alternative sites should be considered for this use.

The depth to bedrock and the very steep slope are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are necessary to overcome the slope limitation. Alternative sites should be considered for this use.

Erosion is a very severe hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible. In most areas the native plant cover should not be removed.

The capability subclass is 7e.

# 97B—Kinzua channery silt loam, 3 to 8 percent slopes

This soil is gently sloping, very deep, and well drained. It is on convex hilltops and on side slopes that receive runoff from the higher adjacent soils. It occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are oblong or rectangular, and range from 10 to 75 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 3 inches, dark grayish brown channery silt loam with 15 percent channers

### Subsoil:

3 to 12 inches, yellowish brown friable channery silt loam, with 15 percent channers 12 to 36 inches, yellowish brown friable channery silt loam, with 20 percent channers 36 to 45 inches, brown firm very channery silt loam, with 45 percent channers

### Substratum:

45 to 72 inches, olive brown firm very channery silt loam, with 45 percent channers

Included in mapping are small areas of the moderately well drained Eldred and Onoville soils, and somewhat poorly drained soils along drainageways and in seepage spots. Carrollton and Mandy soils, which have bedrock within a depth of 40 inches, are also included. Other inclusions are small areas of Kinzua soils that have more than 35 percent rock fragments in the subsoil, and Ceres soils where the soils are reddish brown in color. Included soils make up about 10 to 20 percent of this unit.

## Soil properties—

Permeability: Moderate in the surface and subsoil, and moderately slow in the substratum

Available water capacity: Moderate or high

Soil reaction: Very strongly acid or strongly acid throughout the profile Water table: At a depth of 4.0 to 6.0 feet from November through April

Flooding hazard: None

Depth to bedrock: More than 60 inches

Some areas have been cleared and are used for row crops, alfalfa, hay or pasture. The row crops are grown in support of dairy farming. Small woodlots are in some areas, and some of the acreage is idle land that is reverting to brush. This soil meets the requirements for prime farmland.

This soil is well suited to all of the crops commonly grown in the county. The growing season is shorter for this soil than for nearby valley soils at lower elevations. The use of short-season or early maturing crop varieties is recommended. Lime is

needed for most crops, especially legumes. Crops respond well to sufficient applications of lime and fertilizer. Erosion may be a hazard on the more sloping areas of this map unit, if the soil is intensively cultivated and is not protected by a plant cover. Incorporating crop residue into the soil, minimizing tillage, and growing cover crops help to maintain tilth and control erosion.

This soil is well suited to hay and pasture. It is especially suitable for grazing early in the growing season. Overgrazing can restrict plant growth and increase the hazard of erosion. Deep-rooted legumes grow well, but applications of lime and fertilizer are required to maintain the quality of stands and to ensure good plant growth. Using proper stocking rates, rotating livestock grazing, and controlling weeds and brush by mowing annually are the main management concerns.

The potential productivity of this soil for northern red oak is moderately high. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is moderate. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival.

The depth to saturated zone is the main limitation if this soil is used as a site for dwellings with basements. Adequate site preparation and installing drainage around the footings, and sealing the foundation will overcome this limitation.

Frost action is the main limitation if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems reduce the potential for frost action.

The restricted permeability in the substratum is a limitation on sites for septic tank absorption fields. Engineering and design modifications are needed if onsite waste disposal systems are installed. The absorption field should be installed in suitable fill material.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 2e.

# 97C—Kinzua channery silt loam, 8 to 15 percent slopes

This soil is strongly sloping, very deep, and well drained. It is on the shoulders of hilltops that receive runoff from higher adjacent soils. It occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are oblong or rectangular, and range from 10 to 75 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 3 inches, dark grayish brown channery silt loam with 15 percent channers

### Subsoil:

3 to 12 inches, yellowish brown friable channery silt loam, with 15 percent channers 12 to 36 inches, yellowish brown friable channery silt loam, with 20 percent channers 36 to 45 inches, brown firm very channery silt loam, with 45 percent channers

## Substratum:

45 to 72 inches, olive brown firm very channery silt loam, with 45 percent channers

Included in mapping are small areas of the moderately well drained Eldred and Onoville soils, and somewhat poorly drained soils along drainageways and in seepage spots. Carrollton and Mandy soils, which have bedrock within a depth of 40 inches, are also included. Other inclusions are small areas of Kinzua soils that have more than 35 percent rock fragments in the subsoil, and Ceres soils where the soils are reddish brown in color. Included areas make up about 10 to 20 percent of this unit.

# Soil properties—

Permeability: Moderate in the surface and subsoil, and moderately slow in the substratum

Available water capacity: Moderate or high

Soil reaction: Very strongly acid or strongly acid throughout the profile Water table: At a depth of 4.0 to 6.0 feet from November through April

Flooding hazard: None

Depth to bedrock: More than 60 inches

A few areas have been cleared and are used for row crops, alfalfa, hay or pasture. The row crops are grown in support of dairy farming. Small woodlots are in some areas, and some of the acreage is idle land that is reverting to brush.

This soil is moderately well suited to all of the crops commonly grown in the county. The growing season is shorter for this soil than for nearby valley soils at lower elevations. The use of short-season or early maturing crop varieties is recommended. Lime is needed for most crops, especially legumes. Crops respond well to sufficient applications of lime and fertilizer. Erosion is a hazard if the soil is intensively cultivated and is not protected by a plant cover. Incorporating crop residue into the soil, minimizing tillage, and growing cover crops help to maintain tilth and control erosion. Farming on the contour and stripcropping help to control erosion and conserve water during the growing season.

This soil is well suited to hay and pasture. It is especially suitable for grazing early in the growing season. Overgrazing can restrict plant growth and increase the hazard of erosion. Deep-rooted legumes grow well, but applications of lime and fertilizer are required to maintain the quality of stands and to ensure good plant growth. Using proper stocking rates, rotating livestock grazing, and controlling weeds and brush by mowing annually are the main management concerns.

The potential productivity of this soil for northern red oak is moderately high. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building logging roads and skid trails on the contour helps control erosion and minimizes gullying along the trails.

The depth to saturated zone and slope are the main limitations if this soil is used as a site for dwellings with basements. Adequate site preparation and installing drainage around the footings, and sealing the foundation will overcome the limitation due to wetness. The moderate limitation due to slope can be overcome by adapting the design to the slope, or selecting a flatter nearby site.

Frost action and slope are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems reduce the potential for frost action. Designing and locating roads and streets on the contour of the slope can overcome the limitation due to slope.

The restricted permeability in the substratum is a limitation if this soil is used as a site for septic tank absorption fields. Engineering and design modifications are needed if onsite waste disposal systems are installed. The absorption field should be installed in suitable fill material.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 3e.

# 97D—Kinzua channery silt loam, 15 to 25 percent slopes

This soil is moderately steep, very deep, and well drained. It is on uniformly sloping valley sides that receive runoff from higher adjacent soils. It occurs at elevations

above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are oblong or rectangular and range from 15 to 75 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows— Surface layer:

0 to 3 inches, dark grayish brown channery silt loam with 15 percent channers

### Subsoil:

3 to 12 inches, yellowish brown friable channery silt loam, with 15 percent channers 12 to 36 inches, yellowish brown friable channery silt loam, with 20 percent channers 36 to 45 inches, brown firm very channery silt loam, with 45 percent channers

### Substratum:

45 to 72 inches, olive brown firm very channery silt loam, with 45 percent channers

Included in mapping are small areas of the moderately well drained Eldred and Onoville soils, and somewhat poorly drained soils along drainageways and in seepage spots. Carrollton and Mandy soils, which have bedrock within a depth of 40 inches, are also included. Other inclusions are small areas of Kinzua soils that have more than 35 percent rock fragments in the subsoil, and Ceres soils where the soils are reddish brown in color. Included soils make up about 10 to 20 percent of this unit.

## Soil properties—

Permeability: Moderate in the surface and subsoil, and moderately slow in the substratum

Available water capacity: Moderate or high

Soil reaction: Very strongly acid or strongly acid throughout the profile

Water table: At a depth of more than 6.0 feet

Flooding hazard: None

Depth to bedrock: More than 60 inches

Most of the acreage is in woodland, or is idle land that is reverting to brush. A few areas are used for hay or pasture.

This soil is poorly suited to cultivated crops because of the severe hazard of erosion and the slope limitation. The growing season is shorter for this soil than for nearby valley soils at lower elevations. The use of short-season or early maturing crop varieties is recommended. Operating farm equipment is difficult and hazardous because of the slope. Erosion is a serious hazard in cultivated areas. Cultivated crops should be grown only occasionally, and the maximum number of conservation practices should be used. Minimizing tillage, growing cover crops, incorporating crop residue into the soil, tilling across the slope, stripcropping, and including sod crops in the cropping system help to maintain good tilth, increase the content of organic matter, and control erosion. Sufficient applications of lime and fertilizer are needed to maintain crop growth. In some years droughtiness may restrict crop growth.

This soil is moderately well suited to hay and pasture. Overgrazing can restrict plant growth and increase the hazard of erosion. Deep-rooted legumes grow well, but applications of lime and fertilizer are required to maintain the quality of stands and to ensure good plant growth. If plowing is necessary to establish a plant cover, plowing across the slope and leaving strips of sod help to control runoff. Using proper stocking rates, rotating livestock grazing, and controlling weeds and brush by mowing annually are the main management concerns.

The potential productivity of this soil for northern red oak is moderately high. The hazard of off-road or off-trail erosion is moderate and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building logging roads and skid trails on the contour helps control erosion and minimizes gullying along the trails.

The slope is the main limitation if this soil is used as a site for dwellings with basements. The limitation due to slope can be overcome by adapting the design to the slope or selecting a flatter nearby site.

The slope and frost action are the main limitations if this soil is used as a site for local roads and streets. Designing and locating roads and streets on the contour of the slope can help overcome the limitation due to slope. Adding coarse textured subgrade or base material and installing roadside drainage systems reduce the potential for frost action.

The slope and the restricted permeability in the substratum are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modification are needed if onsite waste disposal systems are installed. Extensive land modification is needed to overcome the slope. The absorption field should be installed in suitable fill material.

Erosion is a serious hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 4e.

# 97E—Kinzua channery silt loam, 25 to 35 percent slopes

This soil is steep, very deep, and well drained. It is on uniformly sloping valley sides that receive runoff from higher adjacent soils. It occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are long and narrow, and range from 10 to 50 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 3 inches, dark grayish brown channery silt loam with 15 percent channers

### Subsoil:

3 to 12 inches, yellowish brown friable channery silt loam, with 15 percent channers 12 to 36 inches, yellowish brown friable channery silt loam, with 20 percent channers 36 to 45 inches, brown firm very channery silt loam, with 45 percent channers

### Substratum:

45 to 72 inches, olive brown firm very channery silt loam, with 45 percent channers

Included in mapping are small areas of the moderately well drained Eldred and Onoville soils, and somewhat poorly drained soils along drainageways and in seepage spots. Carrollton and Mandy soils, which have bedrock within a depth of 40 inches, are also included. Other inclusions are small areas of Kinzua soils that have more than 35 percent rock fragments in the subsoil, and Ceres soils where the soils are reddish brown in color. Included areas make up about 10 to 20 percent of this unit.

### Soil properties—

Permeability: Moderate in the surface and subsoil, and moderately slow in the substratum

Available water capacity: Moderate or high

Soil reaction: Very strongly acid or strongly acid throughout the profile

Water table: At a depth of more than 6.0 feet

Flooding hazard: None

Depth to bedrock: More than 60 inches

Most areas are used as woodland and wildlife habitat. Some of the less sloping areas are idle, or are used as pasture.

The soil is not suited to cultivated crops or hay because of the slope and very severe hazard of erosion. Operating farm machinery is very difficult because of the slope. A plant cover that controls runoff and erosion is essential.

The less sloping areas of this soil can be used as pasture on a limited basis. A good plant cover is needed. Prevention of overgrazing helps to protect the soil from erosion and gullying. Reseeding pastures is difficult because of the slope.

The potential productivity of this soil for northern red oak is moderately high. The hazard of off-road or off-trail erosion is moderate and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building logging roads and skid trails on the contour helps control erosion and minimizes gullying along the trails.

The slope is the main limitation if this soil is used as a site for dwellings with basements. The limitation due to slope can be overcome by adapting the design to the slope, or selecting a flatter nearby site.

Slope and frost action are the main limitations if this soil is used as a site for local roads and streets. Designing and locating roads and streets on the contour of the slope can overcome the limitation due to slope. Adding coarse textured subgrade or base material and installing roadside drainage systems reduce the potential for frost action.

The slope and the restricted permeability in the substratum are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Extensive land modification is needed to overcome the slope limitation.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 6e.

# 97F—Kinzua channery silt loam, 35 to 60 percent slopes

This soil is very steep, very deep, and well drained. It is on hillsides and valley sides that receive runoff from the higher adjacent soils. Many areas along the valley are deeply dissected by V-shaped gullies. It occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are long and narrow, and range from 10 to 50 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 3 inches, dark grayish brown channery silt loam with 15 percent channers

### Subsoil:

3 to 12 inches, yellowish brown friable channery silt loam, with 15 percent channers 12 to 36 inches, yellowish brown friable channery silt loam, with 20 percent channers 36 to 45 inches, brown firm very channery silt loam, with 45 percent channers

### Substratum:

45 to 72 inches, olive brown firm very channery silt loam, with 45 percent channers

Included in mapping are small areas of the well drained Carrollton and Mandy soils, which have bedrock within a depth of 40 inches. Also included are small areas of Kinzua soils that have more than 35 percent rock fragments in the subsoil, and Ceres soils where the soils are reddish brown in color. Included soils make up about 10 to 20 percent of this unit.

## Soil properties—

Permeability: Moderate in the surface and subsoil, and moderately slow in the substratum

Available water capacity: Moderate or high

Soil reaction: Very strongly acid or strongly acid throughout the profile

Water table: At a depth of more than 6.0 feet

Flooding hazard: None

Depth to bedrock: More than 60 inches

Most areas are used as woodland and wildlife habitat. The soil is not suited to cultivated crops, hay or pasture because of the slope and very severe hazard of erosion. Operating farm machinery is very difficult because of the slope. A plant cover that controls runoff and erosion is essential.

The potential productivity of this soil for northern red oak is moderately high. The hazard of off-road or off-trail erosion and the hazard of erosion on roads and trails are severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building logging roads and skid trails on the contour helps control erosion and minimizes gullying along the trails.

The slope is the main limitation if this soil is used as a site for dwellings with basements. The limitation due to slope may be overcome by adapting the design to the slope, or considering alternative sites for this use.

Slope and frost action are the main limitations if this soil is used as a site for local roads and streets. Designing and locating roads and streets on the contour can help overcome the limitation due to slope. Adding coarse textured subgrade or base material and installing roadside drainage systems reduce the potential for frost action.

The slope and the restricted permeability in the substratum are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Extensive land modification is needed to overcome the slope limitation. Alternative sites should be considered for this use.

Erosion is a severe hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible. In most areas the native plant cover should not be removed.

The capability subclass is 7e.

# 98D—Kinzua channery silt loam, 15 to 25 percent slopes, extremely bouldery

This soil is moderately steep, very deep, and well drained. It is on uniformly sloping valley sides that receive runoff from higher adjacent soils. It occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. Boulders and large stones cover 3 to 15 percent of the surface. Individual areas are oblong or rectangular, and range from 15 to 65 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 3 inches, dark grayish brown channery silt loam with 15 percent channers

### Subsoil

3 to 12 inches, yellowish brown friable channery silt loam, with 15 percent channers 12 to 36 inches, yellowish brown friable channery silt loam, with 20 percent channers 36 to 45 inches, brown firm very channery silt loam, with 45 percent channers

## Substratum:

45 to 72 inches, olive brown firm very channery silt loam, with 45 percent channers

Included in mapping are small areas of the moderately well drained Eldred and Onoville soils, and somewhat poorly drained soils along drainageways and in seepage spots. Carrollton and Mandy soils, which have bedrock within a depth of 40

inches, are also included. Other inclusions are small areas of Kinzua soils that have more than 35 percent rock fragments in the subsoil, and small areas of Ceres soils where the soils are reddish brown in color. Included areas make up about 10 to 20 percent of this unit.

## Soil properties—

Permeability: Moderate in the surface and subsoil, and moderately slow in the substratum

Available water capacity: Moderate or high

Soil reaction: Very strongly acid or strongly acid throughout the profile

Water table: At a depth of more than 6.0 feet

Flooding hazard: None

Depth to bedrock: More than 60 inches

Most of the acreage of this soil is in woodland. A few areas are used for unimproved pasture.

This soil is not suited to cultivated crops or hay due to the large boulders on the surface. The boulders on the surface make mechanical cultivation and harvesting activities impractical or impossible.

This soil is poorly suited to pasture. Some areas may support unimproved pasture. Large boulders on the surface hinder reseeding. Overgrazing is another concern in managing pasture because it can damage native pasture plants. Using proper stocking rates, controlling weeds and brush, and deferring grazing when the soil is wet are good management practices.

The potential productivity of this soil for northern red oak is moderately high. The hazard of off-road or off-trail erosion is moderate and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building logging roads and skid trails on the contour helps control erosion and minimizes gullying along the trails. Excessive surface boulders limit the use of logging equipment.

Slope and large boulders on the surface are the main limitations if this soil is used as a site for dwellings with basements. Extensive land modification and grading may be needed to overcome the slope. Large boulders on the soil surface can make excavation difficult and costly.

Large boulders on the surface, slope, and frost action are the main limitations if this soil is used as a site for local roads and streets. Extensive land modification and grading may be needed to overcome the slope. Boulders on the soil surface can make excavation difficult and costly.

Adding coarse textured subgrade or base material and installing roadside drainage systems reduce the potential for frost action.

The slope, restricted permeability in the substratum and large boulders are the main limitations if this soil is used as a site for septic tank absorption fields. Boulders on the surface can make excavation difficult and costly. Extensive engineering and design modification are needed if onsite waste disposal systems are installed.

Erosion is a serious hazard on construction sites. Erosion can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 6s.

# 98E—Kinzua channery silt loam, 25 to 35 percent slopes, extremely bouldery

This soil is steep, very deep, and well drained. It is on uniformly sloping valley sides that receive runoff from higher adjacent soils. It occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F.

Boulders and large stones cover 3 to 15 percent of the surface. Individual areas are oblong or rectangular, and range from 15 to 95 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 3 inches, dark grayish brown channery silt loam with 15 percent channers

### Subsoil:

3 to 12 inches, yellowish brown friable channery silt loam, with 15 percent channers 12 to 36 inches, yellowish brown friable channery silt loam, with 20 percent channers 36 to 45 inches, brown firm very channery silt loam, with 45 percent channers

#### Substratum:

45 to 72 inches, olive brown firm very channery silt loam, with 45 percent channers

Included in mapping are small areas of the moderately well drained Eldred and Onoville soils, and somewhat poorly drained soils along drainageways and in seepage spots. Carrollton and Mandy soils, which have bedrock within a depth of 40 inches, are also included. Other inclusions are small areas of Kinzua soils that have more than 35 percent rock fragments in the subsoil, and small areas of Ceres soils where the soils are reddish brown in color. Included areas make up about 10 to 20 percent of this unit.

## Soil properties—

Permeability: Moderate in the surface and subsoil, and moderately slow in the substratum

Available water capacity: Moderate or high

Soil reaction: Very strongly acid or strongly acid throughout the profile

Water table: At a depth of more than 6.0 feet

Flooding hazard: None

Depth to bedrock: More than 60 inches

Most areas are used as woodland and wildlife habitat.

This soil is not suited to cultivated crops or hay due to the large boulders on the surface and the steep slopes. The boulders on the surface make mechanical cultivation and harvesting activities impractical or impossible. A plant cover that controls runoff and erosion is essential.

This soil is poorly suited to pasture. Some areas may support unimproved pasture. Large boulders on the surface and slope hinder reseeding. Overgrazing is another concern in managing pasture because it can damage native pasture plants. A good plant cover is needed. Prevention of overgrazing helps to protect the soil from erosion and gullying.

The potential productivity of this soil for northern red oak is moderately high. The hazard of off-road or off-trail erosion is moderate and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building logging roads and skid trails on the contour helps control erosion and minimizes gullying along the trails. Excessive surface boulders limit the use of logging equipment.

Slope and large boulders on the surface are the main limitations if this soil is used as a site for dwellings with basements. Extensive land modification and grading may be needed to overcome the slope limitation. Designing the dwellings so that they conform to the natural slope of the land reduces the amount of grading required. Boulders on the soil surface can make excavation difficult and costly.

Large boulders on the surface, slope, and frost action are the main limitations if this soil is used as a site for local roads and streets. Extensive land modification and grading may be needed to overcome the slope. Boulders on the soil surface can

make excavation difficult and costly. Adding coarse textured subgrade or base material and installing roadside drainage systems reduce the potential for frost action.

The slope, restricted permeability in the substratum and large boulders are the main limitations if this soil is used as a site for septic tank absorption fields. Boulders on the surface can make excavation difficult and costly. Extensive engineering and design modification are needed if onsite waste disposal systems are installed.

Erosion is a serious hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible. In most areas the native plant cover should not be removed.

The capability subclass is 7s.

# 99B—Buchanan silt loam, 3 to 8 percent slopes

This soil is gently sloping, very deep, and moderately well drained. It is on hillsides and lower colluvial side slopes that receive runoff from the higher adjacent soils. Individual areas are oblong, and range from 10 to 50 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 6 inches, dark grayish brown silt loam with 10 percent channers

Subsoil:

6 to 16 inches, yellowish brown very friable channery silt loam, with 15 percent channers

16 to 22 inches, yellowish brown friable channery silt loam, with 15 percent channers

22 to 33 inches, olive brown firm channery clay loam, with light brownish gray iron depletions and strong brown iron accumulation; and 20 percent channers

33 to 45 inches, olive brown very firm channery silt loam, with light brownish gray iron depletions and strong brown iron accumulations, and 30 percent channers

### Substratum:

45 to 72 inches, olive brown firm very gravelly silt loam, with 50 percent gravel

Included in mapping are small areas of the somewhat poorly drained Portville soils along drainageways and in seepage spots, and small areas of well drained Rayne soils on slight rises and knolls without a fragipan. Also included are small areas of well drained Hartleton soils which have more channers in the subsoil and bedrock within 40 to 60 inches of the surface. Small areas of Buchanan soils that have channery fragments in the surface layer are also included. Included areas make up about 10 to 20 percent of the unit.

## Soil properties—

Permeability: Moderate in the surface layer and subsoil above the fragipan, slow in the fragipan and substratum

Available water capacity: Low to high

Soil reaction: Extremely acid and strongly acid throughout the profile

Water table: Perched at a depth of 1.5 to 2.0 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most of the acreage is in woodland, or is idle land that is reverting to brush. Some areas are cultivated for row crops grown in support of dairy farming, or are in hay or pasture.

This soil is well suited to most of the crops commonly grown in the county. Draining the wetter included soils by random tile drains allows for earlier planting and more uniform management of the fields. Sufficient applications of lime are needed if

legumes are to be established. Erosion is a hazard on long slopes in intensively cultivated areas. Farming on the contour, stripcropping, growing cover crops, and establishing diversions that break up long slopes help to control runoff and erosion. Minimizing tillage, growing cover crops, incorporating crop residue into the soil, and mulching increase the rate of water infiltration during the growing season and help to maintain tilth.

This soil is well suited to pasture. Overgrazing and grazing when the soil is wet are the main concerns in managing pasture. The soil becomes compacted if the pasture is grazed during wet periods. Overgrazing and surface compaction restrict plant growth, damage pasture plants, and increase the rate of runoff. Applying a sufficient amount of lime and fertilizer, using proper stocking rates, rotating livestock grazing, and controlling weeds and brush are the main management concerns.

The potential productivity of this soil for northern red oak is moderately high. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is moderate. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival.

The depth to saturated zone and shrink-swell potential are the main limitations if this soil is used as a site for dwellings with basements. Installing drains around footings and sealing foundations and basement walls will help to prevent excessive wetness in basements. Installing interceptor drains and diversion ditches in upslope areas diverts surface and subsurface water from the dwellings.

Depth to saturated zone, frost action, and shrink-swell potential are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems help to overcome these limitations.

The depth to saturated zone, depth to dense material, and restricted permeability are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste systems are installed. Installing a drainage system in the area around the absorption field, and adding permeable fill material help to overcome seasonal wetness and the restricted permeability.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 2w.

# 99C—Buchanan silt loam, 8 to 15 percent slopes

This soil is strongly sloping, very deep, and moderately well drained. It is on hillsides and lower colluvial side slopes that receive runoff from the higher adjacent soils. Individual areas are rectangular, and range from 5 to 30 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 6 inches, dark grayish brown silt loam with 10 percent channers

Subsoil:

6 to 16 inches, yellowish brown very friable channery silt loam, with 15 percent channers

16 to 22 inches, yellowish brown friable channery silt loam, with 15 percent channers

22 to 33 inches, olive brown firm channery clay loam, with light brownish gray iron depletions and strong brown iron accumulation; and 20 percent channers

33 to 45 inches, olive brown very firm channery silt loam, with light brownish gray iron depletions and strong brown iron accumulations, and 30 percent channers

### Substratum:

45 to 72 inches, olive brown firm very gravelly silt loam, with 50 percent gravel

Included in mapping are small areas of the somewhat poorly drained Portville soils along drainageways and in seepage spots, and small areas of well drained Rayne soils on slight rises and knolls without a fragipan. Also included are small areas of well drained Hartleton soils which have more channers in the subsoil and bedrock within 40 to 60 inches of the surface. Small areas of Buchanan soils that have channery fragments in the surface layer are also included. Included areas make up about 10 to 20 percent of the unit.

## Soil properties—

Permeability: Moderate in the surface layer and subsoil above the fragipan, slow in the fragipan and substratum

Available water capacity: Low to high

Soil reaction: Extremely acid through strongly acid throughout the profile Water table: Perched at a depth of 1.5 to 2.0 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most of the acreage of this soil is in woodland. A few areas have been cultivated, or are in hay or pasture.

This soil is moderately well suited to row crops if erosion and runoff are controlled. Draining the wetter included soils by random tile drains allows for earlier planting and more uniform management of the fields. Sufficient applications of lime are needed if legumes are to be established. Erosion is a hazard on long slopes and intensively cultivated areas. Farming on the contour, stripcropping, growing cover crops, and establishing diversions that break up long slopes help to control runoff and erosion. Minimizing tillage, growing cover crops, incorporating crop residue into the soil, and mulching increase the rate of water infiltration during the growing season and help to maintain tilth. Areas where conservation practices cannot be applied are better suited to deep-rooted legumes than to cultivated crops.

This soil is well suited to pasture. Overgrazing is the main concern in managing pasture because it can damage pasture plants. Grazing when the soil is wet early in spring can result in surface compaction, damage to the pasture and severe erosion. Rotating livestock grazing, using proper stocking rates, controlling weeds and brush, and deferring grazing when the soil is wet are the main management concerns.

The potential productivity of this soil for northern red oak is moderately high. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building logging roads and skid trails on the contour helps control erosion and minimizes gullying along the trails.

The depth to saturated zone, slope and shrink-swell potential are the main limitations on sites for dwellings with basements. Installing drains around footings, and sealing foundations and basement walls will help to prevent excessive wetness in basements and reduce shrink-swell potential. Installing interceptor drains and diversion ditches in upslope areas diverts surface and subsurface water from the dwellings. Land grading and building on the contour help to overcome the slope limitation.

Depth to saturated zone, slope, frost action and shrink-swell potential are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material, and installing roadside drainage systems help to overcome these limitations. Land grading and building on the contour help to overcome the slope limitation.

The depth to saturated zone, depth to dense material, and restricted permeability are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste systems are installed. Installing a drainage system in the area around the absorption field, and adding permeable fill material help to overcome seasonal wetness and the restricted permeability.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 3e.

# 99D—Buchanan silt loam, 15 to 25 percent slopes

This soil is moderately steep, very deep, and moderately well drained. It is on smooth colluvial hillsides and valley sides that receive runoff from the higher adjacent soils. Individual areas are oblong and narrow, and range from 10 to 40 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 6 inches, dark grayish brown silt loam with 10 percent channers

Subsoil

6 to 16 inches, yellowish brown very friable channery silt loam, with 15 percent channers

16 to 22 inches, yellowish brown friable channery silt loam, with 15 percent channers

22 to 33 inches, olive brown firm channery clay loam, with light brownish gray iron depletions and strong brown iron accumulation; and 20 percent channers

33 to 45 inches, olive brown very firm channery silt loam, with light brownish gray iron depletions and strong brown iron accumulations, and 30 percent channers

## Substratum:

45 to 72 inches, olive brown firm very gravelly silt loam, with 50 percent gravel

Included in mapping are small areas of the somewhat poorly drained Portville soils along drainageways and in seepage spots, and small areas of well drained Rayne soils on slight rises and knolls without a fragipan. Also included are small areas of well drained Hartleton soils which have more channers in the subsoil and bedrock within 40 to 60 inches of the surface. Small areas of Buchanan soils that have channery fragments in the surface layer are also included. Included areas make up about 10 to 20 percent of the unit.

## Soil properties—

Permeability: Moderate in the surface layer and subsoil above the fragipan, slow in the fragipan and substratum

Available water capacity: Low to high

Soil reaction: Extremely acid to strongly acid throughout the profile

Water table: Perched at a depth of 1.5 to 2.0 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most of the acreage is in woodland. Some areas are idle land that is reverting to brush. A few areas are used for hay or pasture.

This soil is poorly suited to cultivated crops because of the moderately steep slope and the severe hazard of erosion. The slope limits the use of farm equipment. Tillage is slightly delayed in spring because of the wetness. Cultivated crops should be grown only occasionally, and the maximum number of conservation practices should be used. Growing cover crops, minimizing tillage, and establishing diversions that

break up long slopes and divert excess runoff help to control erosion. Where the slope permits, farming on the contour and stripcropping are suitable. Because tilling the soil is difficult and erosion is a hazard, long-term sod crops are more practical than most other crops. A sufficient amount of lime and fertilizer are needed to maintain good crop growth. Areas where conservation practices cannot be applied are better suited to deep-rooted legumes than to cultivated crops.

This soil is generally better suited to hay and pasture than to cultivated crops. Grazing when the soil is wet and overgrazing are main concerns in managing pasture. Grazing when the soil is wet causes surface compaction and damage to the pasture. Overgrazing increases the hazard of erosion. Plowing across the slope and leaving strips of sod help to control erosion when an area is reseeded. Rotating livestock grazing, using proper stocking rates, controlling weeds and brush, deferring grazing when the soil is wet, and applying the proper kinds and amounts of lime and fertilizer are the main management concerns.

The potential productivity of this soil for northern red oak is moderately high. The hazard of off-road or off-trail erosion is moderate and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building logging roads and skid trails on the contour helps control erosion and minimizes gullying along the trails.

The depth to saturated zone, slope, and shrink-swell potential are the main limitations if this soil is used as a site for dwellings with basements. Installing drains around footings, and sealing foundations and basement walls will help to prevent excessive wetness in basements. Installing interceptor drains and diversion ditches in upslope areas diverts surface and subsurface water from the dwellings. Land grading and building on the contour help to overcome the slope limitation.

Slope, depth to saturated zone, frost action, and shrink-swell potential are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems help to overcome these limitations. Land grading and building on the contour help to overcome the slope limitation.

The slope, depth to saturated zone, depth to dense material, and restricted permeability are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste systems are installed. Extensive land modification is needed to overcome the slope. Installing a subsurface drainage system upslope from the absorption field, and adding permeable fill material help to overcome seasonal wetness and the restricted permeability.

Erosion is a hazard on construction sites. It can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 4e.

# 100—Udorthents, loamy skeletal

These soils are nearly level, very deep, and excessively drained to somewhat poorly drained. Gravel and soil material formerly were removed from these soils, but the soils were later reclaimed by land leveling and some areas are presently used for agricultural purposes. Most of the acreage is idle land that is reverting to woodland. Most areas are rectangular, and range from 10 to 50 acres in size. Slopes generally are smooth and range from 0 to 3 percent.

These soils exhibit little or no evidence of profile development. The texture and drainage vary considerably from one area to another. In most cases the topsoil has been removed and stockpiled. After excavations for gravel were completed, the areas were leveled and covered with topsoil or loamy material.

In a typical profile the surface layer is brown or grayish brown gravelly loam or loamy sand, 4 to 8 inches thick. The substratum is brown or yellowish brown, and varies widely in texture from very gravelly loamy sand to very gravelly silty clay. In some areas, there is no topsoil and the substratum has numerous cobblestones.

Included in mapping are small areas of the somewhat poorly drained Red Hook soils in slight depressions and along drainageways. Also included are the well drained Valois soils in areas where the Udorthents adjoins glacial till; Chenango soils in areas where the Udorthents adjoins gravelly outwash; and Tioga soils are in areas where the Udorthents adjoin silty soils on alluvial flood plains. Earthen dams are also included in this map unit. Included areas make up about 10 to 20 percent of this unit.

## Soil properties—

Permeability: Variable but generally from moderate to rapid throughout the profile Available water capacity: Very low to moderate

Soil reaction: Very strongly acid to moderately alkaline throughout the profile Water table: Variable, depending upon the elevation and the level of the water in adjacent soils

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are cultivated and used for row crops and legumes in support of dairy operations. Few areas have been reclaimed and left idle.

Unless intensive management is applied, these soils are not suited to cultivated crops, hay, or pasture. Efforts must be made to increase the content of organic matter and build up the topsoil. Rock fragments can limit tillage and can cause machinery to wear at a more rapid rate. Sufficient applications of lime and fertilizer are required for most crops. Measures that increase the content of organic matter and the available water capacity include growing cover crops and incorporating crop residue into the soils.

Because of the variability of these soils, onsite investigation is needed to determine the suitability for any urban use.

No capability subclass is assigned.

## 101—Udorthents, refuse substratum

These nearly level to steep, very deep, excessively drained to somewhat poorly drained loamy soils are in areas of sanitary landfills that have been reworked by earthmoving and grading equipment. Commonly, the trash and other refuse in these areas are partly covered, or are mixed with the loamy soil material. In some areas the loamy material completely covers the refuse and is seeded. The sides of most areas are steep, and the top is nearly level or gently sloping. Most areas are rectangular, and range from 10 to 100 acres in size. Slopes range from 0 to 35 percent. Slopes generally are smooth and convex.

These soils vary too widely to have a typical profile. Commonly, the upper 2 to 3 feet occurs as mixed layers of loamy material. This material is underlain by layers of trash and other refuse 5 to 20 feet thick. Where the loamy material is used for daily cover, it is likely to be less than 2 feet thick.

Included in mapping are areas that have been cut and filled. Generally, these areas are filled with soil material, rock, and debris from other sites, and then are leveled. The soil material exhibits little or no evidence of profile development, and its texture and drainage class can vary considerably from one area to another. Included areas make up about 5 to 15 percent of this unit.

## Soil properties—

Permeability: Variable, but generally moderate to rapid

Available water capacity: Very low to moderate

Soil reaction: Very strongly acid to moderately alkaline throughout the profile Water table: Variable, depending upon the elevation and the level of the water in

adjacent soils Flooding hazard: None

Depth to bedrock: More than 6 feet

Most active sanitary landfills do not support plants. The older areas support varying amounts of grasses, weeds, and shrubs. Some reclaimed areas are used for hay, and some areas have been filled with soil material and rock debris, and are used for urban development.

Settling of the underlying material and the instability of the material are the main limitations affecting homesite development, local roads and streets, and septic tank absorption fields. Areas that have an adequate cover of soil material and have been improved by land shaping can be used for hay.

Most areas require onsite investigation to determine the suitability for various uses. No capability subclass is assigned.

# 102C—Mandy-Rock outcrop complex, 3 to 15 percent slopes

Mandy soil is gently sloping to strongly sloping, moderately deep, and well drained. It is on hilltops in areas where the topography is influenced by the underlying bedrock. This unit may be observed at Little Rock City south of the village of Ellicottville. Sandstone and siltstone bedrock is at a depth of 20 to 40 inches in the Mandy portion of the unit. It occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are oblong, and range from 10 to 40 acres in size.

Mandy soil makes up 40 percent of the unit; Rock outcrop makes up 35 percent, and other included soils make up 25 percent of the unit. The Mandy soil and Rock outcrop occur in such an intricate pattern that it was not practical to separate them at the scale used in mapping.

The typical sequence, depth, and composition of the layers of the Mandy soil are as follows—

Surface laver:

0 to 2 inches, very dark brown channery silt loam 20 percent channers

Subsoil.

2 to 13 inches, strong brown very friable channery silt loam, with 30 percent channers 13 to 24 inches, yellowish brown friable very channery silt loam, with 50 percent channers

24 to 33 inches, yellowish brown very friable extremely flaggy silt loam, with 65 percent flagstones and channers

33 inches, fractured siltstone and sandstone bedrock

Included in mapping are small areas of a moderately well drained Eldred and Onoville soils, which have less rock fragments in the subsoil and more clay than Mandy soils. Well drained Kinzua soils are included where the bedrock is deeper than 40 inches. Somewhat poorly drained Frewsburg soils are included in wetter depressional areas. Mandy soils which have a silt loam surface layer are present in spots. Also included are areas where the bedrock is within 20 inches of the surface. Included areas make up about 25 percent of this unit.

## Soil properties of the Mandy soils-

Permeability: Moderate throughout the profile Available water capacity: Very low to moderate

Soil reaction: Extremely acid or strongly acid throughout the profile

Water table: At a depth of more than 6 feet

Flooding hazard: None

Depth to bedrock: 20 to 40 inches

All areas of this unit, except for those on exposed bedrock, support natural vegetation consisting of trees and brush. Some small trees and brush grow in the crevices of the rocks.

This soil is not suited to cultivated crops or hay due to the exposed bedrock. The exposed bedrock and large boulders on the surface make mechanical cultivation and harvesting activities impractical or impossible.

This soil is poorly suited to pasture. Some areas may support unimproved pasture. Large boulders and exposed bedrock on the surface hinder reseeding. Overgrazing is the main concern in managing pasture because it can damage native pasture plants. Grazing when the soil is wet early in spring can result in surface compaction, damage to the pasture, and erosion. Using proper stocking rates, controlling weeds and brush, and deferring grazing when the soil is wet are the main management concerns.

The potential productivity for northern red oak is moderately high in the Mandy soils. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is moderate. The potential for seedling mortality is low in the Mandy soil. Planting seedlings early in spring, when the soil is moist, helps to improve their chances of survival. Excessive surface boulders limit the use of logging equipment.

Exposed bedrock and the depth to bedrock are the main limitations if this soil is used as a site for dwellings with basements. Bedrock and large boulders on the soil surface can make excavation difficult and costly.

Exposed bedrock and boulders on the surface, frost action, and depth to bedrock are the main limitations if this soil is used as a site for local roads and streets. Careful planning and layout of roads and streets to avoid the rock outcroppings and large boulders will help reduce excavation. Adding coarse textured subgrade or base material and installing roadside drainage systems help to overcome the frost action.

Depth to bedrock and exposed bedrock on the surface are limitations if this soil is used as a site for septic tank absorption fields. Bedrock and large boulders on the surface can make excavation difficult and costly. Care is needed to prevent the contamination of ground water resulting from seepage through the jointed and fractured bedrock. The absorption field should be installed in suitable fill material.

Erosion is a hazard on construction sites. Erosion can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 7s.

# 103C—Knapp Creek-Rock outcrop complex, 3 to 15 percent slopes

This soil is gently sloping to strongly sloping, deep, and well drained. It is on ridges and summits where the topography is influenced by the underlying bedrock. It occurs at elevations above 2,200 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are oblong, and range from 10 to 40 acres in size.

Knapp Creek soils make up 40 percent of the unit, Rock outcrop makes up 35 percent, and other included soils make up 25 percent of the unit. The Knapp Creek soils and Rock outcrop occur in such an intricate pattern that it was not practical to separate them at the scale used in mapping.

The typical sequence, depth, and composition of the layers of the Knapp Creek soil are as follows—

Surface layer:

0 to 3 inches, black partially decomposed leaf litter

#### Subsurface layer:

3 to 11 inches, pinkish gray loose gravelly loamy sand with 25 percent gravel

#### Subsoil:

11 to 16 inches, strong brown very friable gravelly sandy loam with 25 percent gravel 16 to 22 inches, brownish yellow very friable very gravelly sandy loam, with 40 percent gravel

22 to 48 inches, yellowish brown and brownish yellow very friable extremely gravelly sandy loam, with 70 percent gravel

#### Substratum:

48 to 58 inches, pale yellow extremely gravelly sandy loam, highly weathered sandstone conglomerate, with 80 percent gravel

58 inches, sandstone bedrock consisting of Olean conglomerate (fig. 13)

Included in mapping are small areas of moderately well drained Eldred and Elko soils, which have less rock fragments in the subsoil and more clay than Knapp Creek soils. Well drained Kinzua soils are included where the bedrock is deeper than 60 inches. Also included are small areas of similar Flatiron soils which contain less rock fragments, and small areas of similar soils where the bedrock is within 20 inches of the surface or where the bedrock is at a depth greater than 60 inches. Included areas make up about 25 percent of this unit.



Figure 13.—Typical area of Knapp Creek-Rock outcrop complex, 3 to 15 percent slopes, showing the exposed Olean sandstone conglomerate.

## Soil properties—

Permeability: Moderately rapid or rapid throughout the profile

Available water capacity: Low or moderate

Soil reaction: Extremely acid to strongly acid throughout the profile

Water table: At a depth of more than 6 feet

Flooding hazard: None

Depth to bedrock: 40 to 60 inches

All areas of this unit, except for those on exposed bedrock, support natural vegetation consisting of trees and brush. Some small trees and brush grow in the crevices of the rocks.

This soil is not suited to cultivated crops or hay due to the exposed bedrock. The exposed bedrock and boulders on the surface make mechanical cultivation and harvesting activities impractical or impossible.

This soil is poorly suited to pasture. Erosion is a moderate hazard, particularly on areas left bare of plant cover. Operating machinery is somewhat restricted by rock outcroppings, boulders, and uneven slopes. Overgrazing is a major concern of pasture management as it causes the reduction or loss of desirable pasture plants. Rotational grazing and proper stocking rates help to increase the quantity and quality of feed and forage and maintain pasture productivity.

The potential productivity of this soil for northern red oak is moderately high. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Excessive surface boulders limit the use of logging equipment.

Exposed bedrock and large boulders are the main limitations if this soil is used as a site for dwellings with basements. Large boulders on the soil surface can make excavation difficult and costly. Erosion is a moderate hazard during construction. Uneven slopes and variable depth to bedrock reduce site selection. Where possible, dwellings with basements should be constructed in areas of deep Knapp Creek soils.

Exposed bedrock and large boulders on the surface, frost action, and depth to bedrock are the main limitations if this soil is used as a site for local roads and streets. Careful planning and layout of roads and streets to avoid the rock outcroppings and large boulders will help reduce excavation. Adding coarse textured subgrade or base material and installing roadside drainage systems help to overcome the frost action.

Poor filtering capacity, depth to bedrock, and exposed bedrock are limitations if this soil is used as a site for septic tank absorption fields. Bedrock and large boulders on the surface can make excavation difficult and costly. Care is needed to prevent the contamination of ground water resulting from rapid permeability and seepage through the jointed and fractured bedrock. The absorption fields should be installed in suitable fill material.

Erosion is a hazard on construction sites. Erosion can be controlled by minimizing the disturbance and by revegetating the site as soon as possible.

The capability subclass is 7s.

# 104B—Flatiron loamy fine sand, 3 to 8 percent slopes, extremely bouldery

This soil is gently sloping, very deep, and well drained. It is on ridges of shoulder and summits that receive little or no runoff from higher adjacent soils. It occurs at elevations above 2,000 feet, where the mean annual air temperature is less than 45

degrees F. Boulders and large stones cover 3 to 15 percent of the surface. Individual areas are oblong or rectangular, and range from 10 to 75 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 1 inch, black partially decomposed leaf litter

Subsurface layer:

1 to 2 inches, pinkish gray loose loamy fine sand, with 10 percent gravel

Subsoil:

2 to 25 inches, brown very friable gravelly fine sandy loam, with 15 percent gravel 25 to 36 inches, strong brown very friable gravelly loamy fine sand, with 30 percent gravel

Substratum:

36 to 47 inches, light yellowish brown firm very gravelly sandy loam, with strong brown iron accumulations, and 50 percent gravel

47 to 60 inches, strong brown firm silty clay loam, with 10 percent gravel 60 to 72 inches, pale brown firm gravelly loam, with 20 percent gravel

Included in mapping are small areas of the moderately well drained Eldred soils that have more clay in the subsoil; moderately well drained Elko soils that have a fragipan in the subsoil; and soils similar to Flatiron but are somewhat poorly drained along drainageways and in seepage spots. Other inclusions are small areas of well drained Kinzua soils that have more clay in the subsoil; Ceres soils in areas where the soils are reddish brown in color, and Knapp Creek soils which have more than 35 percent gravel in the solum. Also included are small areas without a bouldery surface. Included areas make up about 25 percent of this unit.

## Soil properties—

Permeability: Moderately rapid or rapid in the surface, subsurface and subsoil, and moderately rapid to moderately slow in the substratum

Available water capacity: Low or moderate

Soil reaction: Extremely acid to strongly acid throughout the profile

Water table: At a depth of more than 6.0 feet

Flooding hazard: None

Depth to bedrock: More than 60 inches

Most of the acreage of this soil is in woodland. A few areas are used for unimproved pasture.

This soil is not suited to cultivated crops or hay due to the large boulders on the surface. The boulders on the surface make mechanical cultivation and harvesting activities impractical or impossible. The growing season is shorter for this soil than for nearby valley soils at lower elevations.

This soil is poorly suited to pasture. Erosion is a moderate hazard, particularly on areas left bare of plant cover. Operating machinery is somewhat restricted by boulders and stones. Overgrazing is a major concern of pasture management as it causes the reduction or loss of desirable pasture plants. Rotational grazing and proper stocking rates help to increase the quantity and quality of feed and forage, and maintain pasture productivity.

The potential productivity of this soil for northern red oak is moderately high. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is moderate. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Excessive surface boulders limit the use of logging equipment.

Boulders are the main limitation if this soil is used as site for dwellings with basements. Boulders and stones on the soil surface can make excavation difficult and costly.

Large stones and boulders on the surface and frost action are the main limitations if this soil is used as a site for local roads and streets. Careful planning and layout of roads and streets will minimize excavation, which can be difficult and costly, and help to overcome the limitations of boulders and large stones. Adding coarse textured subgrade or base material, and installing roadside drainage systems help to overcome the potential for frost action.

Surface rock fragments are a limitation if this soil is used as a site for septic tank absorption fields. Boulders on the surface can make excavation difficult and costly. The absorption field should be installed in suitable fill material.

Erosion is a hazard on construction sites. Minimal removal of vegetation, mulching, and quickly establishing plant cover help to control erosion and sedimentation.

The capability subclass is 7s.

# 104C—Flatiron loamy fine sand, 8 to 15 percent slopes, extremely bouldery

This soil is strongly sloping, very deep, and well drained. It on shoulder slopes of summits that receive runoff from higher adjacent soils. It occurs at elevations above 2,000 feet, where the mean annual air temperature is less than 45 degrees F. Boulders and large stones cover 3 to 15 percent of the surface. Individual areas are oblong or rectangular, and range from 10 to 75 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 1 inch, black partially decomposed leaf litter

Subsurface layer:

1 to 2 inches, pinkish gray loose loamy fine sand, with 10 percent gravel

Subsoil:

2 to 25 inches, brown very friable gravelly fine sandy loam, with 15 percent gravel 25 to 36 inches, strong brown very friable gravelly loamy fine sand, with 30 percent gravel

Substratum:

36 to 47 inches, light yellowish brown firm very gravelly sandy loam, with strong brown iron accumulations, and 50 percent gravel

47 to 60 inches, strong brown firm silty clay loam, with 10 percent gravel 60 to 72 inches, pale brown firm gravelly loam, with 20 percent gravel

Included in mapping are small areas of the moderately well drained Eldred soils that have more clay in the subsoil; moderately well drained Elko soils that have a fragipan in the subsoil; and soils similar to Flatiron but are somewhat poorly drained along drainageways and in seepage spots. Other inclusions are small areas of well drained Kinzua soils that have more clay in the subsoil; Ceres soils in areas where the soils are reddish brown in color, and Knapp Creek soils which have more than 35 percent gravel in the solum. Also included are small areas without a bouldery surface. Included areas make up about 25 percent of this unit.

### Soil properties—

Permeability: Moderately rapid or rapid in the surface, subsurface and subsoil, and moderately rapid to moderately slow in the substratum

Available water capacity: Low or moderate

Soil reaction: Extremely acid to strongly acid throughout the profile

Water table: At a depth of more than 6.0 feet

Flooding hazard: None

Depth to bedrock: More than 60 inches

Most of the acreage of this soil is in woodland. A few areas are used for unimproved pasture.

This soil is not suited to cultivated crops or hay due to the large boulders on the surface. The boulders on the surface make mechanical cultivation and harvesting activities impractical or impossible. The growing season is shorter for this soil than for nearby valley soils at lower elevations.

This soil is poorly suited to pasture. Erosion is a moderate hazard, particularly on areas left bare of plant cover. Operating machinery is somewhat restricted by boulders and large stones. Overgrazing is a major concern of pasture management as it causes the reduction or loss of desirable pasture plants. Rotational grazing and proper stocking rates help to increase the quantity and quality of feed and forage and maintain pasture productivity.

The potential productivity of this soil for northern red oak is moderately high. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building logging roads and skid trails on the contour helps control erosion and minimizes gullying along the trails. Excessive surface boulders limit the use of logging equipment.

Boulders and slope are the main limitations if this soil is used as a site for dwellings with basements. Land grading and shaping help to overcome the slope limitation. Boulders and large stones on the soil surface can make excavation difficult and costly.

Boulders on the surface, slope, and frost action are the main limitations if this soil is used as a site for local roads and streets. Careful planning and layout of roads and streets on the contour help to overcome the limitations of boulders and slope. Adding coarse textured subgrade or base material and installing roadside drainage systems reduce the potential for frost action.

Surface rock fragments are a limitation if this soil is used as a site for septic tank absorption fields. Boulders on the surface can make excavation difficult and costly. The absorption field should be installed in suitable fill material.

Erosion is a hazard on construction sites. Minimal removal of vegetation, mulching, and quickly establishing plant cover help to control erosion and sedimentation The capability subclass is 7s.

# 104D—Flatiron loamy fine sand, 15 to 25 percent slopes, extremely bouldery

This soil is moderately steep, very deep, and well drained. It is on uniformly sloping valley sides that receive runoff from higher adjacent soils. It occurs at elevations above 2,000 feet, where the mean annual air temperature is less than 45 degrees F. Boulders and large stones cover 3 to 15 percent of the surface. Individual areas are oblong or rectangular, and range from 10 to 75 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows— Surface layer:

0 to 1 inch, black partially decomposed leaf litter

Subsurface layer:

1 to 2 inches, pinkish gray loose loamy fine sand, with 10 percent gravel

#### Subsoil:

2 to 25 inches, brown very friable gravelly fine sandy loam, with 15 percent gravel 25 to 36 inches, strong brown very friable gravelly loamy fine sand, with 30 percent gravel

Substratum:

36 to 47 inches, light yellowish brown firm very gravelly sandy loam, with strong brown iron accumulations, and 50 percent gravel

47 to 60 inches, strong brown firm silty clay loam, with 10 percent gravel 60 to 72 inches, pale brown firm gravelly loam, with 20 percent gravel

Included in mapping are small areas of the moderately well drained Eldred soils that have more clay in the subsoil; moderately well drained Elko soils that have a fragipan in the subsoil; and soils similar to Flatiron but are somewhat poorly drained along drainageways and in seepage spots. Other inclusions are small areas of well drained Kinzua soils that have more clay in the subsoil; Ceres soils in areas where the soils are reddish brown in color; and Knapp Creek soils which have more than 35 percent gravel in the solum. Also included are small areas without a bouldery surface. Included areas make up about 25 percent of this unit.

### Soil properties—

Permeability: Moderately rapid or rapid in the surface, subsurface and subsoil, and moderately rapid to moderately slow in the substratum

Available water capacity: Low or moderate

Soil reaction: Extremely acid to strongly acid throughout the profile

Water table: At a depth of more than 6.0 feet

Flooding hazard: None

Depth to bedrock: More than 60 inches

Most of the acreage of this soil is in woodland.

This soil is not suited to cultivated crops or hay due to the large boulders on the surface. The boulders on the surface make mechanical cultivation and harvesting activities impractical or impossible. The growing season is shorter for this soil than for nearby valley soils at lower elevations.

This soil is poorly suited to pasture. Erosion is a hazard, particularly on areas left bare of plant cover. Operating machinery is somewhat restricted by boulders and large stones. Overgrazing is a major concern of pasture management as it causes the reduction or loss of desirable pasture plants. Rotational grazing and proper stocking rates help to increase the quantity and quality of feed and forage and maintain pasture productivity.

The potential productivity of this soil for northern red oak is moderately high. The hazard of off-road or off-trail erosion is moderate and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building logging roads and skid trails on the contour helps control erosion and minimizes gullying along the trails. Excessive surface boulders limit the use of logging equipment.

Boulders and slope are the main limitations if this soil is used as a site for dwellings with basements. Extensive land modification and grading may be needed to overcome the slope. Boulders and large stones on the soil surface can make excavation difficult and costly.

Slope, boulders on the surface, and frost action are the main limitations if this soil is used as a site for local roads and streets. Careful planning and layout of roads and streets on the contour help to overcome the limitations of boulders and slope. Adding coarse textured subgrade or base material and installing roadside drainage systems reduce the potential for frost action.

Slope and surface rock fragments are limitations if this soil is used as a site for septic tank absorption fields. Boulders on the surface can make excavation difficult and costly. Extensive land modification is needed to overcome the slope. The absorption field should be installed in suitable fill material.

Erosion is a serious hazard on construction sites. Minimal removal of vegetation, mulching, and quickly establishing plant cover help to control erosion and sedimentation.

The capability subclass is 7s.

# 104E—Flatiron loamy fine sand, 25 to 35 percent slopes, extremely bouldery

This soil is steep, very deep, and well drained. It is on uniformly sloping valley sides that receive runoff from higher adjacent soils. It occurs at elevations above 2,000 feet, where the mean annual air temperature is less than 45 degrees F. Boulders and large stones cover 3 to 15 percent of the surface. Individual areas are oblong or rectangular, and range from 10 to 75 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 1 inch, black partially decomposed leaf litter

Subsurface layer:

1 to 2 inches, pinkish gray loose loamy fine sand, with 10 percent gravel

Subsoil:

2 to 25 inches, brown very friable gravelly fine sandy loam, with 15 percent gravel 25 to 36 inches, strong brown very friable gravelly loamy fine sand, with 30 percent gravel

Substratum:

36 to 47 inches, light yellowish brown firm very gravelly sandy loam, with strong brown iron accumulations, and 50 percent gravel

47 to 60 inches, strong brown firm silty clay loam, with 10 percent gravel 60 to 72 inches, pale brown firm gravelly loam, with 20 percent gravel

Included in mapping are small areas of the moderately well drained Eldred soils that have more clay in the subsoil; moderately well drained Elko soils that have a fragipan in the subsoil; and soils similar to Flatiron but are somewhat poorly drained along drainageways and in seepage spots. Other inclusions are small areas of well drained Kinzua soils that have more clay in the subsoil; Ceres soils in areas where the soils are reddish brown in color; and Knapp Creek soils which have more than 35 percent gravel in the solum. Also included are small areas without a bouldery surface. Included areas make up about 25 percent of this unit.

### Soil properties—

Permeability: Moderately rapid or rapid in the surface, subsurface and subsoil, and moderately rapid to moderately slow in the substratum

Available water capacity: Low or moderate

Soil reaction: Extremely acid to strongly acid throughout the profile

Water table: At a depth of more than 6.0 feet

Flooding hazard: None

Depth to bedrock: More than 60 inches

Most areas are used as woodland and wildlife habitat.

This soil is not suited to cultivated crops or hay due to the large boulders on the

surface and steep slopes. The boulders on the surface and steep slopes make mechanical cultivation and harvesting activities impractical or impossible. A plant cover that controls runoff and erosion is essential. The growing season is shorter for this soil than for nearby valley soils at lower elevations.

This soil is poorly suited to pasture. Erosion is a hazard, particularly on areas left bare of plant cover. Boulders on the surface and slope hinder reseeding. Overgrazing is the main concern in managing pasture because it can damage native pasture plants. Prevention of overgrazing helps to protect the soil from erosion and gullying. Rotational grazing and proper stocking rates help to increase the quantity and quality of feed and forage and maintain pasture productivity.

The potential productivity of this soil for northern red oak is moderately high. The hazard of off-road or off-trail erosion is moderate and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building logging roads and skid trails on the contour helps control erosion and minimizes gullying along the trails. Excessive surface boulders limit the use of logging equipment.

Slope and boulders are the main limitations if this soil is used as a site for dwellings with basements. Extensive land modification and grading may be needed to overcome the slope. Designing the dwellings so that they conform to the natural slope of the land reduces the amount of grading required. Boulders on the soil surface can make excavation difficult and costly.

Slope, boulders on the surface, and frost action are the main limitations if this soil is used as a site for local roads and streets. Careful planning and layout of roads and streets on the contour help to overcome the limitations of boulders and slope. Adding coarse textured subgrade or base material and installing roadside drainage systems reduce the potential for frost action.

Slope and surface rock fragments are limitations if this soil is used as a site for septic tank absorption fields. Boulders on the surface can make excavation difficult and costly. Extensive land modification is needed to overcome the slope. The absorption field should be installed in suitable fill material.

Erosion is a serious hazard on construction sites. Minimal removal of vegetation, mulching, and quickly establishing plant cover help to control erosion and sedimentation. In most areas the native plant cover should not be removed.

The capability subclass is 7s.

# 108D—Hartleton channery silt loam, 15 to 25 percent slopes

This soil is moderately steep, deep, and well drained. It is on uniformly sloping valley sides that receive runoff from higher adjacent soils. Individual areas are oblong or rectangular, and range from 15 to 75 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 3 inches, dark grayish brown channery silt loam with 15 percent channers

#### Subsoil:

3 to 10 inches, yellowish brown friable channery silt loam, with 15 percent channers 10 to 19 inches, brown friable channery silt loam with 30 percent channers

19 to 32 inches, dark yellowish brown friable very channery silt loam with 45 percent channers

32 to 38 inches, brown friable very channery silt loam with yellowish brown iron accumulations, and 45 percent channers

#### Substratum:

38 to 58 inches, brown friable extremely channery silt loam, with 60 percent channers 58 inches, interbedded siltstone, sandstone, and shale bedrock

Included in mapping are small areas of the moderately well drained Buchanan soils and somewhat poorly drained Portville soils along drainageways and in seepage spots, and Gilpin soils which have bedrock within a depth of 40 inches. Also included are small areas of Rayne soils that have less rock fragments in the solum and have bedrock deeper than 60 inches. Included areas make up about 10 to 20 percent of this unit.

#### Soil properties—

Permeability: Moderate or moderately rapid throughout the profile

Available water capacity: Low or moderate

Soil reaction: Very strongly acid or strongly acid throughout the profile

Water table: At a depth of more than 6.0 feet

Flooding hazard: None

Depth to bedrock: 40 to 60 inches

Most of the acreage is in woodland, or is idle land that is reverting to brush. A few areas are used for hay or pasture. A small acreage is used for row crops.

This soil is poorly suited to cultivated crops because of the severe hazard of erosion and slope. Operating farm equipment is difficult and hazardous because of the moderately steep slope. Erosion is a serious hazard in cultivated areas. Cultivated crops should be grown only occasionally, and the maximum number of conservation practices should be used. Minimizing tillage, growing cover crops, incorporating crop residue into the soil, tilling across the slope, stripcropping, and including sod crops in the cropping system help to maintain good tilth, increase the content of organic matter, and control erosion. Sufficient applications of lime and fertilizer are needed to maintain crop growth. In some years droughtiness restricts crop growth.

This soil is moderately well suited to hay and pasture. It is especially suitable for grazing early in the growing season. Overgrazing can restrict plant growth and increase the hazard of erosion. Deep-rooted legumes grow well, but applications of lime and fertilizer are required to maintain the quality of stands, and to ensure good plant growth. If necessary to establish a plant cover, plowing across the slope and leaving strips of sod help to control runoff. Using proper stocking rates, rotating livestock grazing, and controlling weeds and brush by mowing annually are the main management concerns.

The potential productivity of this soil for northern red oak is moderately high. The hazard of off-road or off-trail erosion is moderate and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building logging roads and skid trails on the contour helps control erosion and minimizes gullying along the trails.

The slope and the depth to bedrock are the main limitations if this soil is used as a site for dwellings with basements. Extensive land modification may be necessary to overcome the slope. Designing the dwellings so that they conform to the natural slope of the land reduces the amount of grading required. Although excavation may be costly, the bedrock generally can be ripped with a backhoe. Installing drains around footings helps to remove any lateral seepage moving through fractures in the bedrock.

Slope and frost action are the main limitations if this soil is used as a site for local roads and streets. Extensive land modification and leveling may be necessary to overcome the slope limitation. Adding coarse textured subgrade or base material, and installing roadside drainage systems reduce the potential for frost action.

The slope and depth to bedrock are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. The shale bedrock commonly can be ripped. Care is needed to prevent the contamination of ground water resulting from seepage through the jointed and fractured bedrock.

Erosion is a hazard on construction sites. Minimal removal of vegetation, mulching, and quickly establishing plant cover help to control erosion and sedimentation.

The capability subclass is 4e.

# 108E—Hartleton channery silt loam, 25 to 35 percent slopes

This soil is steep, deep, and well drained. It is on uniformly sloping valley sides that receive runoff from higher adjacent soils. Individual areas are oblong or rectangular, and range from 15 to 75 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 3 inches, dark grayish brown channery silt loam with 15 percent channers

#### Subsoil:

3 to 10 inches, yellowish brown friable channery silt loam, with 15 percent channers 10 to 19 inches, brown friable channery silt loam with 30 percent channers

19 to 32 inches, dark yellowish brown friable very channery silt loam with 45 percent channers

32 to 38 inches, brown friable very channery silt loam with yellowish brown iron accumulations, and 45 percent channers

#### Substratum:

38 to 58 inches, brown friable extremely channery silt loam, with 60 percent channers 58 inches, interbedded siltstone, sandstone, and shale bedrock

Included in mapping are small areas of the moderately well drained Buchanan soils and somewhat poorly drained Portville soils along drainageways and in seepage spots, and Gilpin soils which have bedrock within a depth of 40 inches. Also included are small areas of Rayne soils that have less rock fragments in the solum and have bedrock deeper than 60 inches. Included areas make up about 10 to 20 percent of this unit.

#### Soil properties—

Permeability: Moderate or moderately rapid throughout the profile

Available water capacity: Low or moderate

Soil reaction: Very strongly acid or strongly acid throughout the profile

Water table: At a depth of more than 6.0 feet

Flooding hazard: None

Depth to bedrock: 40 to 60 inches

Most of the acreage is in woodland, or is idle land that is reverting to brush. A few areas are used for hay or pasture.

This soil is unsuited to cultivated crops or hay because of the steep slope and severe hazard of erosion. Operating farm equipment is difficult and hazardous because of the slope. Maintaining a plant cover that controls runoff and erosion is essential.

This soil is poorly suited to hay and pasture due to the steep slopes. A good plant cover should be maintained. Prevention of overgrazing helps to protect the soil from

erosion and gullying. Reseeding pastures, and applying the necessary lime and fertilizer is difficult because of the steep slope.

The potential productivity of this soil for northern red oak is moderately high. The hazard of off-road or off-trail erosion is moderate and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building logging roads and skid trails on the contour helps control erosion and minimizes gullying along the trails.

The slope and the depth to bedrock are the main limitations if this soil is used as a site for dwellings with basements. Extensive land modification may be necessary to overcome the slope. Designing the dwellings so that they conform to the natural slope of the land reduces the amount of grading required. Although excavation may be costly, the bedrock generally can be ripped with a backhoe. Installing drains around footings helps to remove any lateral seepage moving through fractures in the bedrock.

Slope and frost action are the main limitations if this soil is used as a site for local roads and streets. Extensive land modification and leveling may be necessary to overcome the slope limitation. Adding coarse textured subgrade or base material, and installing roadside drainage systems reduce the potential for frost action.

The slope and depth to bedrock are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. The bedrock commonly can be ripped. Care is needed to prevent the contamination of ground water resulting from seepage through the jointed and fractured bedrock.

Erosion is a hazard on construction sites. Minimal removal of vegetation, mulching, and quickly establishing plant cover help to control erosion and sedimentation. In most areas the native plant cover should not be removed.

The capability subclass is 6e.

# 108F—Hartleton channery silt loam, 35 to 50 percent slopes

This soil is very steep, deep, and well drained. It is on uniformly sloping valley sides that receive runoff from higher adjacent soils. Individual areas are oblong or rectangular, and range from 15 to 75 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 3 inches, dark grayish brown channery silt loam with 15 percent channers

#### Subsoil:

3 to 10 inches, yellowish brown friable channery silt loam, with 15 percent channers 10 to 19 inches, brown friable channery silt loam with 30 percent channers

19 to 32 inches, dark yellowish brown friable very channery silt loam with 45 percent

32 to 38 inches, brown friable very channery silt loam with yellowish brown iron accumulations, and 45 percent channers

#### Substratum:

38 to 58 inches, brown friable extremely channery silt loam, with 60 percent channers 58 inches, interbedded siltstone, sandstone, and shale bedrock

Included in mapping are small areas of the moderately well drained Buchanan soils and somewhat poorly drained Portville soils along drainageways and in seepage spots, and Gilpin soils which have bedrock within a depth of 40 inches. Also included

are small areas of Rayne soils that have less rock fragments in the solum and have bedrock deeper than 60 inches. Included areas make up about 10 to 20 percent of this unit.

## Soil properties—

Permeability: Moderate or moderately rapid throughout the profile

Available water capacity: Low or moderate

Soil reaction: Very strongly acid or strongly acid throughout the profile

Water table: At a depth of more than 6.0 feet

Flooding hazard: None

Depth to bedrock: 40 to 60 inches

Most areas are wooded and provide wildlife habitat.

This soil is not suited to cultivated crops, hay or pasture. It is limited mainly by the slope and the very severe hazard of erosion. It is too steep for the safe operation of farm equipment. A plant cover that controls runoff and erosion is essential.

The potential productivity of this soil for northern red oak is moderately high. The hazard of off-road or off-trail erosion and the hazard of erosion on roads and trails are severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building logging roads and skid trails on the contour helps control erosion and minimizes gullying along the trails.

Construction is extremely difficult or impractical on this soil. The very steep slope is the main limitation if this soil is used as a site for local roads and streets, dwellings with basements, and septic tank absorption fields. Erosion is a very serious hazard on construction sites. Minimal removal of vegetation, mulching, and quickly establishing plant cover help to control erosion and sedimentation. In most areas the native plant cover should not be removed.

The capability subclass is 7e.

# 131—Lamson very fine sandy loam

This soil is very deep, nearly level, and poorly drained. It is on flat lowlands on lake plains and on broad flats in the major valleys. Individual areas are oblong or irregularly shaped. Most areas range from 10 to 50 acres in size, but some are as large as 100 acres or more. Slopes are uniform and range from 0 to 3 percent.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 9 inches, very dark gray very fine sandy loam

Subsurface layer:

9 to 16 inches, pale brown very friable very fine sandy loam, with yellowish brown iron accumulations and gray iron depletions

Subsoil:

16 to 25 inches, gray very friable fine sandy loam, with yellowish brown iron accumulations and light brownish gray iron depletions

25 to 35 inches, brown very friable fine sandy loam, with yellowish brown iron accumulations and gray iron depletions

Substratum:

35 to 55 inches, dark grayish brown loose loamy fine sand, with yellowish brown iron accumulations

55 to 72 inches, dark grayish brown loose layers of fine sandy loam and loamy fine sand

Included in mapping are small areas that are similar to the Lamson soil, but are very poorly drained and have a mucky surface layer. Also included are areas of the somewhat poorly drained Minoa soils on slight rises or knolls; small areas of Getzville soils, which have a silty mantle and are underlain by sandy deposits; and areas of soils that have a surface layer of silt loam. Included areas make up about 10 to 20 percent of the unit.

### Soil properties—

Permeability: Moderate or moderately rapid throughout the profile

Available water capacity: Moderate or high

Soil reaction: Moderately acid to slightly alkaline in the surface and subsurface layers, and from slightly acid to moderately alkaline in the subsoil and substratum

Water table: At the surface to a depth of 0.5 foot from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Many areas are idle and support water-tolerant grasses, brush and trees. Cleared and drained areas are used for small grains, corn and hay in support of dairy operations. This soil meets the requirements for a hydric soil.

Unless a drainage system is installed, this soil is not suited to cultivated crops. Drainage outlets commonly are not readily available because the soil is in low areas. Where a drainage system is feasible, the soil is suited to field crops and to some vegetables. Although this stone-free soil can be easily tilled, tilth and soil structure deteriorate if the soil is plowed when wet. Growing cover crops, incorporating crop residue into the soil, tilling only when the soil is at the proper soil moisture content, and including sod crops in the cropping system help to maintain tilth and increase the content of organic matter.

Unless drained, this soil is poorly suited to pasture. Grazing when the soil is wet results in surface compaction, puddling, and damage to the pasture. Using proper stocking rates, rotating livestock grazing, controlling brush and weeds by mowing annually, and restricting grazing when the soil is wet are good management practices.

The potential productivity of this soil for red maple is moderate. The hazard of offroad or off-trail erosion and the hazard of erosion on roads and trails are slight. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand the seasonal wetness grow best.

This soil is generally unsuited to dwellings with basements. Building on raised fill material may help to overcome the wetness. Alternative sites that are better suited should be considered for this use.

The depth to saturated zone and frost action are the main limitations if this soil is used as a site for local streets and roads. Building on raised coarse-textured fill material, and installing roadside drainage systems help to overcome these limitations.

Depth to saturated zone is a limitation for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Alternative sites that are better suited should be considered for this use.

This soil is well suited to wetland wildlife habitat and to the development of recreational ponds.

The capability subclass is 4w.

# 132B—Wiscoy channery silt loam, 3 to 8 percent slopes

This soil is gently sloping, very deep, and somewhat poorly drained. It is on toeslopes and foot slopes of hillsides and on elevated lake plains that receive runoff from the higher adjacent soils. Individual areas are oblong or irregularly shaped, and range from 5 to 75 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 7 inches, very dark grayish brown channery silt loam with 15 percent channers

### Subsurface layer:

7 to 12 inches, grayish brown friable silt loam, with yellowish brown iron accumulations, and with 10 percent channers

#### Subsoil:

12 to 22 inches, brown firm channery silt loam, with strong brown iron accumulations and grayish brown iron depletions, and with 15 percent channers

22 to 36 inches, grayish brown very firm channery silt loam, with strong brown iron accumulations and grayish brown iron depletions, and with 20 percent channers

#### Substratum:

36 to 47 inches, brown firm silt loam, with yellowish brown iron accumulations and grayish brown iron depletions

47 to 72 inches, dark grayish brown firm silty clay loam, with yellowish brown iron accumulations

Included in mapping are small areas of poorly drained Chippewa soils in slight depressions and along drainageways; Volusia and Erie soils where the lacustrine silts and clays are absent or below 40 inches; and moderately well drained Rushford soils on higher knolls and rises. There are also areas where the glacial till cap is thin and the silts and clays are close to the surface. Also included are small areas of Wiscoy soils that do not have a channery surface layer. Included areas make up about 15 to 25 percent of this unit.

### Soil properties—

Permeability: Moderate above the fragipan, slow or very slow in the fragipan, and slow or moderately slow in the substratum

Available water capacity: Very low or low

Soil reaction: Very strongly acid through neutral throughout the profile

Water table: Perched at a depth of 0.5 to 1.5 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most of the acreage is in woodland, or is idle land that is reverting to woodland. Some areas are used for small grain, corn, or hay grown in support of dairy farming. These areas generally are farmed at a low level of intensity.

This soil is moderately well suited to cultivated crops. Unless a drainage system is installed, planting is delayed in spring, and the soil can be used only for short-season annual crops, hay, or pasture. Harvesting crops during prolonged wet periods in fall is difficult. If drained and protected from erosion, the soil is suited to the crops commonly grown in the county. Interceptor drains can divert runoff from the higher adjacent soils, and tile and open-ditch drainage systems can remove excess water. Tile drains generally should be closely spaced because of the slow permeability in the subsoil. Erosion can be controlled by stripcropping, farming on the contour, growing cover crops, and minimizing tillage. Incorporating crop residue into the soil and tilling only when the soil is at the proper moisture content improve tilth and help to maintain the content of organic matter.

This soil is well suited to water-tolerant hay and to late-spring pasture. Overgrazing and grazing when the soil is wet are the major concerns in managing pasture. Grazing when the soil is wet causes surface compaction, restricts plant growth, and can deplete the stand of pasture grasses, and thus result in serious erosion. Using

proper stocking rates, rotating livestock grazing, deferring grazing when the soil is wet, controlling weeds and brush, and selecting water-tolerant species for seeding are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is moderate. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand the seasonal wetness grow best.

The depth to saturated zone is the main limitation if this soil is used as a site for dwellings with basements. Where outlets are available, installing drains around footings reduces the wetness. Also, sealing foundations and basement walls helps to prevent excessive wetness in basements. Installing interceptor drains and diversion ditches in upslope areas diverts surface and subsurface water from the dwellings. Excavations are subject to slipping or slumping, particularly when the soil is wet.

The depth to saturated zone and frost action are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems help to overcome these limitations.

The depth to saturated zone, depth to dense material, and restricted permeability are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system in the area around the absorption field and adding permeable fill material help to overcome the seasonal wetness and the restricted permeability. Excavations are subject to slipping or slumping, particularly when the soil is wet.

The soil is subject to erosion if plant material is removed during construction. Minimal removal of vegetation, mulching, and quickly establishing plant cover help to control erosion and sedimentation.

The capability subclass is 3w.

# 132C—Wiscoy channery silt loam, 8 to 15 percent slopes

This soil is strongly sloping, very deep, and somewhat poorly drained. It is on toeslopes and foot slopes of hillsides and on elevated lake plains that receive runoff from the higher adjacent soils. Individual areas are oblong or rectangular, and range from 10 to 50 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 7 inches, very dark grayish brown channery silt loam with 15 percent channers

#### Subsurface layer:

7 to 12 inches, grayish brown friable silt loam, with yellowish brown iron accumulations, and with 10 percent channers

### Subsoil:

- 12 to 22 inches, brown firm channery silt loam, with strong brown iron accumulations and grayish brown iron depletions, and with 15 percent channers
- 22 to 36 inches, grayish brown very firm channery silt loam, with strong brown iron accumulations and grayish brown iron depletions, and with 20 percent channers

#### Substratum:

- 36 to 47 inches, brown firm silt loam, with yellowish brown iron accumulations and grayish brown iron depletions
- 47 to 72 inches, dark grayish brown firm silty clay loam, with yellowish brown iron accumulations

Included in mapping are small areas of poorly drained Chippewa soils in slight depressions and along drainageways; Volusia and Erie soils where the lacustrine silts and clays are absent or below 40 inches; and moderately well drained Rushford soils on higher knolls and rises. There are also areas where the glacial till cap is thin and the silts and clays are close to the surface. Also included are small areas of Wiscoy soils that do not have a channery surface layer. Included areas make up about 15 to 25 percent of this unit.

### Soil properties—

Permeability: Moderate above the fragipan, slow or very slow in the fragipan, and slow or moderately slow in the substratum

Available water capacity: Very low or low

Soil reaction: Very strongly acid through neutral throughout the profile

Water table: Perched at a depth of 0.5 to 1.5 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are used for hay and pasture. Some acreage is woodland or is idle land that is reverting to woodland. A few areas are used for small grain, corn, or hay grown in support of dairy farming.

This soil is moderately well suited to cultivated crops. Unless a drainage system is installed, planting is delayed in spring and the soil can be used only for short-season annual crops, hay, or pasture. Harvesting crops during prolonged wet periods in fall is difficult. If drained and protected from erosion, the soil is suited to the crops commonly grown in the county. Interceptor drains can divert runoff from the higher adjacent soils, and tile and open-ditch drainage systems can remove excess water. Tile drains generally should be closely spaced because of the slow permeability in the subsoil. Erosion can be controlled by stripcropping, farming on the contour, growing cover crops, and minimizing tillage. Incorporating crop residue into the soil and tilling only when the soil is at the proper moisture content improve tilth and help to maintain the content of organic matter.

This soil is well suited to water-tolerant hay and to late-spring pasture. Overgrazing and grazing when the soil is wet are the major concerns in managing pasture. Grazing when the soil is wet causes surface compaction, restricts plant growth, and can deplete the stand of pasture grasses, and thus result in serious erosion. Using proper stocking rates, rotating livestock grazing, deferring grazing when the soil is wet, controlling weeds and brush, and selecting water-tolerant species for seeding are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand the seasonal wetness grow best. Building logging roads and skid trails on the contour helps control erosion and minimizes gullying along the trails.

The depth to saturated zone and slope are the main limitations if this soil is used as a site for dwellings with basements. Where outlets are available, installing drains around footings reduces the wetness. Also, sealing foundations and basement walls helps to prevent excessive wetness in basements. Installing interceptor drains and diversion ditches in upslope areas diverts surface and subsurface water from the dwellings. Land grading and building on the contour help to overcome the slope limitation. Excavations are subject to slipping or slumping, particularly when the soil is wet.

The depth to saturated zone, frost action, and slope are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material, and installing roadside drainage systems help to overcome these

limitations. Land grading and building on the contour help to overcome the slope limitation.

The depth to saturated zone, depth to dense material, and restricted permeability are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system in the area around the absorption field and adding permeable fill material helps to overcome the seasonal wetness and the restricted permeability. Excavations are subject to slipping or slumping, particularly when the soil is wet.

Erosion is a serious hazard if the plant cover is removed during construction. Minimal removal of vegetation, mulching, and quickly establishing plant cover help to control erosion and sedimentation.

The capability subclass is 3e.

## 135C—Hudson silt loam, 8 to 15 percent slopes

This soil is strongly sloping, very deep and moderately well drained. It is on glacial lake plains and dissected valley side slopes. Individual areas are oblong or rectangular, and range from 15 to 50 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 7 inches, dark grayish brown silt loam

Subsurface:

7 to 11 inches, pale brown, friable silt loam

Subsoil:

- 11 to 16 inches, dark yellowish brown firm silty clay loam, with yellowish brown iron accumulations
- 16 to 25 inches, brown firm silty clay, with yellowish brown iron accumulations and grayish brown iron depletions
- 25 to 38 inches, dark yellowish brown firm silty clay, with yellowish brown iron accumulations and grayish brown iron depletions

Substratum:

38 to 72 inches, brown firm silty clay with varves of silt and silty clay loam

Included in mapping are small areas of well drained Dunkirk soils and moderately well drained Collamer soils, which have less clay in the subsoil than the Hudson soils. Also included are somewhat poorly drained Rhinebeck soils in slight depressions and along drainageways, and areas that have a gravelly or channery surface texture. Included areas make up about 10 to 20 percent of this unit.

#### Soil properties—

Permeability: Moderate or moderately slow in the surface and subsurface layers, and slow in the subsoil and substratum

Available water capacity: High

Soil reaction: Strongly acid to neutral in the surface and subsurface layer, moderately acid to slightly alkaline in the subsoil, and neutral to moderately alkaline in the substratum

Water table: At a depth of 1.3 to 2.0 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most of the acreage is in woodland or is idle land. Some areas are used for hay or pasture, and a few areas are used as cropland.

This soil is moderately suited to cultivated crops. Erosion is a severe hazard, particularly on areas left bare of plant cover. The seasonal high water table and slow permeability cause the soil to warm slowly in the spring and make tillage difficult. Tillage while the soil is wet will damage soil structure, and result in a hard cloddy seedbed and a crusty surface when the soil dries. Surface drainage will help reduce problems related to wetness. Stripcropping, cross slope tillage, conservation tillage, cover crops, and crop rotations will reduce soil erosion, improve soil tilth, and maintain soil productivity over an extended period of time. Sod buffer strips adjacent to steeply sloping areas will help control erosion.

This soil is better suited to hay and pasture than to cultivated crops. Erosion is a severe hazard, particularly on areas left bare of plant cover. Deep-rooted legumes can be grown on this soil. If necessary to establish a plant cover, plowing across the slope and leaving strips of sod help to control runoff. Overgrazing and grazing when the soil is wet are major concerns of pasture management because they cause soil compaction, and the reduction or loss of desirable pasture plants. Rotational grazing, deferred grazing when wet, and proper stocking rates increase the quantity and quality of feed and forage and maintain pasture productivity.

The potential productivity of this soil for sugar maple is moderately high. The hazard of off-road or off-trail erosion is moderate and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building logging roads and skid trails on the contour helps control erosion and minimizes gullying along the trails.

The depth to saturated zone, slope, and shrink-swell potential are the main limitations if this soil is used as a site for dwellings with basements. Locating dwellings in the highest part of the unit, installing foundation drains back filled with gravel to a suitable outlet, waterproofing the outside of basement walls, and diverting runoff from higher areas will reduce wetness and shrink-swell potential. Land grading and building on the contour help to overcome the slope limitation.

Slope, depth to saturated zone, shrink-swell potential, and frost action are the main limitations if this soil is used as a site for local roads and streets. Installing roadside drainage systems and building on raised coarse-textured fill material help to overcome these limitations. Land grading and building on the contour help to overcome the slope limitation.

The depth to saturated zone and restricted permeability are limitations for septic tank absorption fields. Modifying a conventional system by extending the length of the distribution lines and adding permeable fill material will allow on site sewage disposal in some places. Installing a drainage system in the area around the absorption field, and adding permeable fill material helps to overcome the seasonal wetness and the restricted permeability.

Erosion is a hazard on construction sites. Minimal removal of vegetation, mulching, and quickly establishing plant cover help to control erosion and sedimentation. Recompacting this soil after it has been disturbed commonly is difficult because of the high content of clay.

The capability subclass is 3e.

# 135D—Hudson silt loam,15 to 25 percent slopes

This soil is moderately steep, very deep, and moderately well drained. It is on glacial lake plains and dissected valley side slopes. Individual areas are oblong or rectangular, and range from 15 to 80 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 7 inches, dark grayish brown silt loam

Subsurface:

7 to 11 inches, pale brown, friable silt loam

Subsoil:

11 to 16 inches, dark yellowish brown firm silty clay loam, with yellowish brown iron accumulations

16 to 25 inches, brown firm silty clay, with yellowish brown iron accumulations and grayish brown iron depletions

25 to 38 inches, dark yellowish brown firm silty clay, with yellowish brown iron accumulations and grayish brown iron depletions

Substratum:

38 to 72 inches, brown firm silty clay with varves of silt and silty clay loam

Included in mapping are small areas of well drained Dunkirk soil and moderately well drained Collamer soils, which have less clay in the subsoil than the Hudson soils. Also included are somewhat poorly drained Rhinebeck soils in slight depressions and along drainageways, and areas that have a gravelly or channery surface texture. Included areas make up about 10 to 20 percent of this unit.

## Soil properties—

Permeability: Moderate or moderately slow in the surface and subsurface layers, and slow in the subsoil and substratum

Available water capacity: High

Soil reaction: Strongly acid to neutral in the surface and subsurface layers, moderately acid to slightly alkaline in the subsoil, and neutral to moderately alkaline in the substratum

Water table: At a depth of 1.3 to 2.0 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most of the acreage is in woodland or is idle land. Some areas are used for hay or pasture, and a few areas are used as cropland.

This soil is poorly suited to cultivated crops because of the moderately steep slope and the very severe hazard of erosion. Operating farm equipment is difficult and hazardous because of the slope. Erosion is a serious hazard in cultivated areas. Cultivated crops should be grown only occasionally, and the maximum number of conservation practices should be used. Tillage while the soil is wet will damage soil structure, and result in a hard cloddy seedbed and a crusty surface when the soil dries. Minimizing tillage, growing cover crops, incorporating crop residue into the soil, tilling across the slope, and including sod crops in the cropping system help to maintain good tilth, increase the content of organic matter, and reduce the hazard of erosion.

Sod buffer strips adjacent to steep sloping areas will help control erosion. Areas where conservation practices cannot be applied are better suited to deep-rooted legumes than to cultivated crops.

This soil is better suited to hay and pasture than to cultivated crops. Erosion is a severe hazard, particularly on areas left bare of plant cover. Deep-rooted legumes can be grown on this soil. If necessary to establish a plant cover, plowing across the slope and leaving strips of sod help to control runoff. Overgrazing and grazing when the soil is wet are major concerns of pasture management as they cause soil compaction and loss of desirable pasture plants. Rotational grazing, deferred grazing

when wet, and proper stocking rates increase the quantity and quality of feed and forage and maintain pasture productivity.

The potential productivity of this soil for sugar maple is moderately high. The hazard of off-road or off-trail erosion is moderate and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building logging roads and skid trails on the contour helps control erosion and minimizes gullying along the trails.

The slope, depth to saturated zone, and shrink-swell potential are the main limitations if this soil is used as a site for dwellings with basements. Installing drains around footings, and sealing foundations and basement walls help to prevent excessive wetness in basements. Installing interceptor drains and diversion ditches in upslope areas diverts surface and subsurface water from the dwellings. Designing the dwellings so that they conform to the natural slope of the land reduces the amount of grading required.

The slope, depth to saturated zone, shrink-swell potential, and frost action are the main limitations if this soil is used as a site for local roads and streets. Land grading and building on the contour help to overcome the slope. Adding coarse textured subgrade or base material and installing roadside drainage systems reduces the potential for frost action, wetness and shrink-swell potential.

The depth to saturated zone, slope, and restricted permeability are limitations if this soil is used as a site sites for septic tank absorption fields. Extensive land modification is needed to overcome the slope. Modifying a conventional system by extending the length of the distribution lines and adding fill may allow on site sewage disposal in some places. Installing a drainage system in the area around the absorption field reduces the seasonal wetness, and adding permeable fill material helps to overcome the seasonal wetness and the restricted permeability.

Erosion is a hazard on construction sites. Minimal removal of vegetation, mulching, and quickly establishing plant cover help to control erosion and sedimentation. Recompacting this soil after it has been disturbed commonly is difficult because of the high content of clay.

The capability subclass is 4e.

# 135E—Hudson silt loam, 25 to 35 percent slopes

This soil is steep, very deep and moderately well drained. It is on glacial lake plains and dissected valley side slopes. Individual areas are oblong or rectangular, and range from 15 to 80 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 7 inches, dark grayish brown silt loam

Subsurface:

7 to 11 inches, pale brown, friable silt loam

Subsoil:

- 11 to 16 inches, dark yellowish brown firm silty clay loam, with yellowish brown iron accumulations
- 16 to 25 inches, brown firm silty clay, with yellowish brown iron accumulations and grayish brown iron depletions
- 25 to 38 inches, dark yellowish brown firm silty clay, with yellowish brown iron accumulations and grayish brown iron depletions

Substratum:

38 to 72 inches, brown firm silty clay with varves of silt and silty clay loam

Included in mapping are small areas of well drained Dunkirk and moderately well drained Collamer soils, which have less clay in the subsoil than the Hudson soils. Also included are somewhat poorly drained Rhinebeck soils along drainageways, and areas that have a gravelly or channery surface texture. Included areas make up about 10 to 20 percent of this unit.

### Soil properties—

Permeability: Moderate or moderately slow in the surface and subsurface layers, and slow in the subsoil and substratum

Available water capacity: High

Soil reaction: Strongly acid to neutral in the surface and subsurface layers, moderately acid to slightly alkaline in the subsoil, and neutral to moderately alkaline in the substratum

Water table: At a depth of 1.3 to 2.0 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are used as woodland and wildlife habitat. Some of the acreage is idle land or is used as pasture.

This soil is not suited to cultivated crops or to hay because of the slope and the very severe hazard of erosion. It is highly susceptible to erosion if it is cultivated. Hay crops can be grown, but operating farm equipment is limited by the steep slope. A plant cover that controls runoff and erosion helps to protect the adjacent farmland.

This soil is poorly suited to permanent pasture. Reseeding and applying fertilizer are very difficult. Overgrazing during dry periods depletes the stand of pasture plants and increases the hazard of erosion. Measures that maintain a good plant cover are needed.

The potential productivity of this soil for sugar maple is moderately high. The hazard of off-road or off-trail erosion and the hazard of erosion on roads and trails are severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building logging roads and skid trails on the contour helps control erosion and minimizes gullying along the trails.

The slope, depth to saturated zone, and shrink-swell potential are the main limitations if this soil is used as a site for dwellings with basements. Installing drains around footings, and sealing foundations and basement walls help to prevent excessive wetness in basements. Installing interceptor drains and diversion ditches in upslope areas diverts surface and subsurface water from the dwellings. Designing the dwellings so that they conform to the natural slope of the land may reduce the amount of grading required.

The slope, depth to saturated zone, shrink-swell potential and frost action are the main limitations if this soil is used as a site for local roads and streets. Land grading and building on the contour may help to overcome the slope limitation. Adding coarse textured subgrade or base material, and installing roadside drainage systems reduces the potential for frost action, wetness, and shrink-swell potential.

The slope, depth to saturated zone, and the restricted permeability in the subsoil are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modification are needed if onsite waste disposal systems are installed. Extensive land modification is needed to overcome the slope limitation.

Erosion is a serious problem on construction sites. Minimal removal of vegetation, mulching, and quickly establishing plant cover help to control erosion and sedimentation. In most areas the native plant cover should not be removed.

Recompacting this soil after it has been disturbed commonly is difficult because of the high content of clay.

The capability subclass is 6e.

## 140D—Dunkirk silt loam, 15 to 25 percent slopes

This soil is moderately steep, very deep, and well drained. It is on glacial lake plains and dissected valley side slopes. Individual areas are oblong or rectangular, and range from 15 to 50 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 4 inches, dark grayish brown silt loam

Subsurface layer:

4 to 14 inches, yellowish brown friable silt loam

Subsoil<sup>\*</sup>

14 to 26 inches, brown friable silt loam, with light brownish gray iron depletions

26 to 34 inches, brown friable silty clay loam

34 to 48 inches, brown friable silty clay loam, with yellowish brown iron accumulations and grayish brown iron depletions

Substratum:

48 to 72 inches, brown firm silt loam

Included in mapping are small areas of moderately well drained Collamer soils in slight depressions and along drainageways; small areas of moderately well drained Hudson soils which contain more clay in the subsoil than Dunkirk soils; well drained Unadilla soils which have less clay in the subsoil than the Dunkirk soil; and soils that have a surface layer of very fine sandy loam or gravelly silt loam. Included soils make up about 10 to 20 percent of this unit.

#### Soil properties—

Permeability: Moderate in the surface and subsurface layers, moderately slow in the subsoil and substratum

Available water capacity: High

Soil reaction: Strongly acid to slightly acid in the surface layer, strongly acid to neutral in the subsurface layer, moderately acid to slightly alkaline in the subsoil, and slightly acid to moderately alkaline in the substratum

Water table: At a depth of more than 6 feet

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most of the acreage is in woodland or is idle land. Some areas are used for hay or pasture, and a few areas are used as cropland.

This soil is poorly suited to cultivated crops because of the slope and the very severe hazard of erosion. Operating farm equipment is difficult and hazardous because of the moderately steep slope. Erosion is a serious hazard, especially in cultivated areas. Cultivated crops should be grown only occasionally, and the maximum number of conservation practices should be used. Minimizing tillage, growing cover crops, incorporating crop residue into the soil, tilling across the slope, and including sod crops in the cropping system help to maintain good tilth, increase the content of organic matter, and reduce the hazard of erosion.

This soil is better suited to hay and pasture than to cultivated crops. Overgrazing and grazing when the soil is wet are the main management concerns. Grazing when

the soil is wet damages the pasture. Overgrazing can restrict plant growth and increase the hazard of erosion. Deep-rooted legumes can be grown on this soil. If plowing is necessary to establish a plant cover, plowing across the slope and leaving strips of sod help to control runoff. Using proper stocking rates, rotating livestock grazing, deferring grazing when the soil is wet, and controlling brush and weeds are the main management concerns.

The potential productivity of this soil for sugar maple is moderately high. The hazard of off-road or off-trail erosion is moderate and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building logging roads and skid trails on the contour helps to control erosion and minimizes gullying along the trails.

The slope is the main limitation if this soil is used as a site for dwellings with basements. Land shaping and grading help to overcome this limitation. Designing the dwellings so that they conform to the natural slope of the land reduces the amount of grading required.

The slope and frost action are the main limitations if this soil is used as a site for local roads and streets. Land grading and building on the contour help to overcome the slope. Adding coarse textured subgrade or base material reduces the potential for frost action.

The slope and the restricted permeability in the subsoil and substratum are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Extensive land modification is needed to overcome the slope.

Erosion is a hazard on construction sites. Minimizing the removal of vegetation, mulching, and quickly establishing plant cover, help to control erosion and sedimentation. The capability subclass is 4e.

# 140E—Dunkirk silt loam, 25 to 35 percent slopes

This soil is steep, very deep and well drained. It is on glacial lake plains and dissected valley side slopes. Individual areas are oblong, or long and narrow, and range from 15 to 45 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 4 inches, dark grayish brown silt loam

Subsurface layer:

4 to 14 inches, yellowish brown friable silt loam

Subsoil:

14 to 26 inches, brown friable silt loam, with light brownish gray iron depletions

26 to 34 inches, brown friable silty clay loam

34 to 48 inches, brown friable silty clay loam, with yellowish brown iron accumulations and grayish brown iron depletions

Substratum:

48 to 72 inches, brown firm silt loam

Included in mapping are small areas of moderately well drained Collamer soils in slight depressions and along drainageways; small areas of moderately well drained Hudson soils which contain more clay in the subsoil than Dunkirk soils; well drained Unadilla soils which have less clay in the subsoil than the Dunkirk soil; and soils that have a surface layer of very fine sandy loam or gravelly silt loam. Included soils make up about 10 to 20 percent of this unit.

## Soil properties—

Permeability: Moderate in the surface and subsurface layers, moderately slow in the subsoil and substratum

Available water capacity: High

Soil reaction: Strongly acid to slightly acid in the surface layer, strongly acid to neutral in the subsurface layer, moderately acid to slightly alkaline in the subsoil, and slightly acid to moderately alkaline in the substratum

Water table: At a depth of more than 6 feet

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most areas are used as woodland and wildlife habitat. Some of the acreage is idle land, or is used as pasture.

This soil is not suited to cultivated crops or to hay because of the steep slope and the very severe hazard of erosion. It is highly susceptible to erosion if it is cultivated. A plant cover that controls runoff and erosion should be maintained.

This soil is poorly suited to permanent pasture. Overgrazing during dry periods depletes the stand of pasture plants and increases the hazard of erosion. Measures that maintain a good plant cover are needed.

The potential productivity of this soil for sugar maple is moderately high. The hazard of off-road or off-trail erosion and the hazard of erosion on roads and trails are severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building logging roads and skid trails on the contour helps control erosion and minimizes gullying along the trails.

The slope is the main limitation if this soil is used as a site for dwellings with basements. Land shaping and grading may help to overcome this limitation. Designing the dwellings so that they conform to the natural slope of the land reduces the amount of grading required.

The slope and frost action are the main limitations if this soil is used as a site for local roads and streets. Land grading and building on the contour help to overcome the slope limitation. Adding coarse textured subgrade or base material reduces the potential for frost action.

The slope and the restricted permeability in the subsoil and substratum are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modification are needed if onsite waste disposal systems are installed.

Erosion is a very serious problem on construction sites. Minimizing the removal of vegetation, mulching, and quickly establishing plant cover, help to control erosion and sedimentation. In most areas the native plant cover should not be removed.

The capability subclass is 6e.

# 185C—Onoville silt loam, 8 to 15 percent slopes, extremely bouldery

This soil is strongly sloping, very deep, and moderately well drained. It is on hillsides and colluvial side slopes that receive runoff from the higher adjacent soils. It occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. Boulders cover between 3 to 15 percent of the soil surface. Individual areas are rectangular, and range from 5 to 30 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 8 inches, dark grayish brown silt loam with 5 percent channers

#### Subsoil:

- 8 to 16 inches, yellowish brown friable silt loam, with strong brown iron accumulations and light brownish gray iron depletions, and with 5 percent channers
- 16 to 22 inches, brown friable silty clay loam, with strong brown iron accumulations and light brownish gray iron depletions, and with 10 percent channers
- 22 to 32 inches, yellowish brown firm channery loam, with strong brown iron accumulations and light gray iron depletions, and with 20 percent channers
- 32 to 59 inches, yellowish brown very firm channery clay loam, with strong brown and gray iron accumulations, and with 25 percent channers
- 59 to 65 inches, yellowish brown firm channery silty clay loam, with light gray iron depletions, and with 20 percent channers

#### Substratum:

65 to 72 inches, variegated dark grayish brown and yellowish brown firm channery clay loam, with pinkish gray iron depletions, and with 20 percent channers

Included in mapping are small areas of the somewhat poorly drained Shongo soils along drainageways and in seepage spots, and other soils that are somewhat poorly drained which do not have a fragipan. Also included are small areas of well drained Kinzua soils and moderately well drained Eldred which do not have a fragipan. There are some included areas, especially along drainageways, that have more than 15 percent of the surface covered with large stones and boulders. Included areas make up about 10 to 20 percent of the unit.

## Soil properties—

Permeability: Moderate in the surface layer and subsoil above the fragipan, slow or moderately slow in the fragipan and substratum

Available water capacity: Very low to moderate

Soil reaction: Very strongly acid or strongly acid in the solum, and very strongly acid to moderately acid in the substratum

Water table: Perched at a depth of 1.2 to 2.0 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most of the acreage of this soil is in woodland. A few areas are used for unimproved pasture.

This soil is not suited to cultivated crops or hay due to boulders on the surface. The boulders make mechanical cultivation and harvesting activities impractical or impossible.

This soil is poorly suited to pasture. Some areas may support unimproved pasture. Boulders on the surface limit reseeding and the application of lime and fertilizer. Overgrazing is another concern in managing pasture because it can damage native pasture plants. Grazing when the soil is wet early in spring can result in surface compaction, damage to the pasture, and erosion. Using proper stocking rates, controlling weeds and brush, and deferring grazing when the soil is wet are the main management concerns.

The potential productivity of this soil for northern red oak is moderately high. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building logging roads and skid trails on the contour helps control erosion and minimizes gullying along the trails. Excessive surface boulders limit the use of logging equipment.

The depth to saturated zone, slope, shrink-swell potential and many surface boulders are the main limitations if this soil is used as a site for dwellings with basements. Installing drains around footings, and sealing foundations and basement walls will help to prevent excessive wetness in basements. Installing interceptor

drains and diversion ditches in upslope areas diverts surface and subsurface water from the dwellings. Land grading and building on the contour help to overcome the slope limitation. Boulders and large stones on the soil surface can make excavation difficult and costly.

Depth to saturated zone, slope, frost action, shrink-swell potential, and boulders are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems help to overcome these limitations. Land grading and building on the contour help to overcome the slope limitation. Boulders and large stones on the soil surface can make excavation difficult and costly.

The depth to saturated zone, depth to dense material, restricted permeability, and surface rock fragments are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste systems are installed. Installing a drainage system in the area around the absorption field, and adding permeable fill material help to overcome seasonal wetness and the restricted permeability. Boulders on the surface can make excavation costly. Suitable additional fill material may be needed.

Erosion is a hazard on construction sites. Minimal removal of vegetation, mulching, and quickly establishing plant cover help to control erosion and sedimentation.

The capability subclass is 7s.

# 185D—Onoville silt loam, 15 to 25 percent slopes, extremely bouldery

This soil is moderately steep, very deep, and moderately well drained. It is on valley sides and colluvial side slopes that receive runoff from the higher adjacent soils. It occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. Boulders cover between 3 to 15 percent of the soil surface. Individual areas are rectangular, and range from 5 to 40 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 8 inches, dark grayish brown silt loam with 5 percent channers

### Subsoil:

- 8 to 16 inches, yellowish brown friable silt loam, with strong brown iron accumulations and light brownish gray iron depletions, and with 5 percent channers
- 16 to 22 inches, brown friable silty clay loam, with strong brown iron accumulations and light brownish gray iron depletions, and with 10 percent channers
- 22 to 32 inches, yellowish brown firm channery loam, with strong brown iron accumulations and light gray iron depletions, and with 20 percent channers
- 32 to 59 inches, yellowish brown very firm channery clay loam, with strong brown and gray iron accumulations, and with 25 percent channers
- 59 to 65 inches, yellowish brown firm channery silty clay loam, with light gray iron depletions, and with 20 percent channers

### Substratum:

65 to 72 inches, variegated dark grayish brown and yellowish brown firm channery clay loam, with pinkish gray iron depletions, and with 20 percent channers

Included in mapping are small areas of the somewhat poorly drained Shongo soils along drainageways and in seepage spots, and other soils that are somewhat poorly drained which do not have a fragipan. Also included are small areas of well drained Kinzua soils and moderately well drained Eldred which do not have a fragipan. There are some included areas, especially along drainageways, that have more than 15

percent of the surface covered with large stones and boulders. Included soils make up about 10 to 20 percent of the unit.

### Soil properties—

Permeability: Moderate in the surface layer and subsoil above the fragipan, slow or moderately slow in the fragipan and substratum

Available water capacity: Very low to moderate

Soil reaction: Very strongly acid or strongly acid in the solum, and very strongly acid to moderately acid in the substratum

Water table: Perched at a depth of 1.2 to 2.0 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most of the acreage of this soil is in woodland. A few areas are used for unimproved pasture.

This soil is not suited to cultivated crops or hay due to boulders on the surface and the moderately steep slopes. The boulders and slopes make mechanical cultivation and harvesting activities impractical or impossible.

This soil is poorly suited to pasture. Some areas may support unimproved pasture. Boulders on the surface limit reseeding and the application of lime and fertilizer. Overgrazing is another concern in managing pasture because it can damage native pasture plants. Grazing when the soil is wet early in spring can result in surface compaction, damage to the pasture and erosion. Using proper stocking rates, controlling weeds and brush, and deferring grazing when the soil is wet are the main management concerns.

The potential productivity of this soil for northern red oak is moderately high. The hazard of off-road or off-trail erosion is moderate and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building logging roads and skid trails on the contour helps control erosion and minimizes gullying along the trails. Excessive surface boulders limit the use of logging equipment.

The depth to saturated zone, slope, shrink-swell potential, and many surface boulders are the main limitations if this soil is used as a site for dwellings with basements. Installing drains around footings, and sealing foundations and basement walls will help to prevent excessive wetness in basements. Installing interceptor drains and diversion ditches in upslope areas diverts surface and subsurface water from the dwellings. Land grading and building on the contour help to overcome the slope limitation. Boulders and large stones on the soil surface can make excavation difficult and costly.

Depth to saturated zone, slope, frost action, shrink-swell potential, and boulders are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material, and installing roadside drainage systems help to overcome these limitations. Land grading and building on the contour help to overcome the slope limitation. Boulders and large stones on the soil surface can make excavation difficult and costly.

The slope, depth to saturated zone, depth to dense material, restricted permeability, and surface rock fragments are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste systems are installed. Extensive land modification is needed to overcome the slope. Installing a drainage system in the area around the absorption field and adding permeable fill material, help to overcome seasonal wetness and the restricted permeability. Boulders on the surface can make excavation costly.

Erosion is a hazard on construction sites. Minimizing the removal of vegetation, mulching, and quickly establishing plant cover help to control erosion and sedimentation. The capability subclass is 7s.

# 187B—Shongo silt loam, 3 to 8 percent slopes, extremely bouldery

This soil is gently sloping, very deep, and somewhat poorly drained. It is on hillsides, lower colluvial side slopes, and concave toeslopes that receive runoff from the higher adjacent soils. It occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. There are many boulders and stones which cover 3 to 15 percent of the surface. Individual areas are oblong or irregularly shaped, and range from 5 to 75 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 6 inches, dark grayish brown silt loam with 5 percent channers

Subsoil:

- 6 to 14 inches, yellowish brown friable silt loam, with strong brown iron accumulations and light brownish gray iron depletions, and 5 percent channers
- 14 to 24 inches, brown friable silty clay loam, with strong brown iron accumulations and light brownish gray iron depletions, and 10 percent channers
- 24 to 45 inches, grayish brown very firm channery silty clay loam, with yellowish brown iron accumulations and light brownish gray iron depletions, and 30 percent channers
- 45 to 56 inches, light olive brown firm channery silty clay loam, with yellowish brown iron accumulations and gray iron depletions, and 30 percent channers
- 56 to 72 inches, light olive brown firm channery silty clay loam, with 35 percent channers

Included in mapping are small areas of poorly drained soils in slight depressions and along drainageways; and Ivory soils, which do not have a firm fragipan and have more clay in the subsoil than the Shongo soil. Also included are small areas of moderately well drained Onoville soils in more sloping areas and Frewsburg soils which have bedrock within a depth of 40 inches. Areas that are stony and areas that have more boulders are also included, especially along drainageways. Included areas make up about 15 to 25 percent of this unit.

### Soil properties—

Permeability: Moderate or moderately slow in the surface layer and upper subsoil, and moderately slow or slow in the fragipan and substratum

Available water capacity: Low or moderate

Soil reaction: Very strongly acid to moderately acid in the surface layer and subsoil, and very strongly acid to slightly acid in the substratum

Water table: Perched at a depth of 0.5 to 1.5 feet from November through May Flooding hazard: None

Depth to bedrock: More than 6 feet

Most of the acreage is woodland. There are some areas that have been pastured and are reverting to woodland.

This soil is not suited to cultivated crops due to the excessive amounts of boulders on the surface. The boulders on the surface make mechanical cultivation and harvesting activities impractical or impossible. The growing season is shorter for this soil than for nearby valley soils at lower elevations.

This soil is marginally suited to unimproved pasture. Large boulders on the surface limit reseeding and the application of lime and fertilizer. Overgrazing and grazing when the soil is wet are concerns in managing pasture. Grazing when the soil is wet

causes surface compaction, restricts plant growth, and can deplete the stand of pasture grasses and thus result in serious erosion.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is moderate. The potential for seedling mortality is high. The seasonal wetness increases the seedling mortality rate. Tree species that can withstand the seasonal wetness grow best. Excessive surface boulders limit the use of logging equipment.

The depth to saturated zone, shrink-swell potential, and boulders are the main limitations if this soil is used as a site for dwellings with basements. Installing drains around footings, and sealing foundations and basement walls will help to prevent excessive wetness in basements. Installing interceptor drains and diversion ditches in upslope areas diverts surface and subsurface water from the dwellings. Boulders and large stones on the soil surface can make excavation difficult and costly.

Depth to saturated zone, frost action, shrink-swell potential, and large boulders are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material, and installing roadside drainage systems help to overcome the wetness limitation, reduces shrink-swell potential, and reduces the potential for frost action. Boulders and large stones on the soil surface can make excavation difficult and costly.

The depth to saturated zone, depth to dense material, restricted permeability, and surface rock fragments are limitations if this soil is used as a site septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system in the area around the absorption field reduces the seasonal wetness, and adding permeable fill material helps to overcome the seasonal wetness and the restricted permeability. Boulders may hinder site preparation and excavation. The selection of a nearby site that is better drained and has fewer boulders will help overcome these limitations.

Erosion is a moderate hazard if the plant cover is removed during construction. Minimizing the removal of vegetation, mulching, and quickly establishing plant cover, help to control erosion and sedimentation.

The capability subclass is 7s.

# 187C—Shongo silt loam, 8 to 15 percent slopes, extremely bouldery

This soil is strongly sloping, very deep, and somewhat poorly drained. It is on hillsides, lower colluvial side slopes, and concave toeslopes that receive runoff from the higher adjacent soils. It occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. There are many boulders that cover 3 to 15 percent of the surface. Individual areas are oblong or rectangular, and range from 10 to 50 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 6 inches, dark grayish brown silt loam with 5 percent channers

Subsoil:

- 6 to 14 inches, yellowish brown friable silt loam, with strong brown iron accumulations and light brownish gray iron depletions, and 5 percent channers
- 14 to 24 inches, brown friable silty clay loam, with strong brown iron accumulations and light brownish gray iron depletions, and 10 percent channers
- 24 to 45 inches, grayish brown very firm channery silty clay loam, with yellowish brown iron accumulations and light brownish gray iron depletions, and 30 percent channers

45 to 56 inches, light olive brown firm channery silty clay loam, with yellowish brown iron accumulations and gray iron depletions, and 30 percent channers
56 to 72 inches, light olive brown firm channery silty clay loam, with 35 percent channers

Included in mapping are small areas of poorly drained soils in slight depressions and along drainageways; and Ivory soils which have more clay in the subsoil than the Shongo soil. Also included are small areas of moderately well drained Onoville soils in more sloping areas, and Frewsburg soils which have bedrock within a depth of 40 inches. Areas that are stony or that have more boulders on the surface, especially along drainageways, are also included. Included soils make up about 15 to 25 percent of this unit.

### Soil properties—

Permeability: Moderate or moderately slow in the surface layer and upper subsoil, and moderately slow or slow in the fragipan and substratum

Available water capacity: Low or moderate

Soil reaction: Very strongly acid to moderately acid in the surface layer and subsoil, and very strongly acid to slightly acid in the substratum

Water table: Perched at a depth of 0.5 to 1.5 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most of the acreage is in woodland. There are some areas that have been pastured and are reverting to woodland.

This soil is not suited to cultivated crops due to the excessive amounts of boulders on the surface. The boulders make mechanical cultivation and harvesting activities impractical or impossible (fig. 14). The growing season is shorter for this soil than for nearby valley soils at lower elevations.

This soil is poorly suited to unimproved pasture. Boulders on the surface limit reseeding and the application of lime and fertilizer. Overgrazing and grazing when the soil is wet are concerns in managing pasture. Grazing when the soil is wet causes surface compaction, restricts plant growth, and can deplete the stand of pasture grasses, and thus result in serious erosion.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand the seasonal wetness grow best. Excessive surface boulders limit the use of logging equipment. Building logging roads and skid trails on the contour helps control erosion and minimizes gullying along the trails

The depth to saturated zone, slope, shrink-swell potential, and boulders are the main limitations if this soil is used as a site for dwellings with basements. Installing drains around footings, and sealing foundations and basement walls will help to prevent excessive wetness in basements. Installing interceptor drains and diversion ditches in upslope areas diverts surface and subsurface water from the dwellings. Land grading and building on the contour help to overcome the slope limitation. Boulders and large stones on the soil surface can make excavation difficult and costly.

Depth to saturated zone, frost action, slope, shrink-swell potential, and boulders are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material, and installing roadside drainage systems help to overcome the wetness limitation, reduces shrink-swell potential, and reduces the potential for frost action. Land grading and building on the contour help to overcome the slope limitation. Boulders and large stones on the soil surface can make excavation difficult and costly.



Figure 14.—Typical wooded area of Shongo silt loam, 3 to 8 percent slopes, extremely bouldery.

Large boulders interfere with harvesting operations and mechanical planting of seedlings.

The depth to saturated zone, depth to dense material, restricted permeability, and surface rock fragments are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system in the area around the absorption field reduces the seasonal wetness, and adding permeable fill material helps to overcome the seasonal wetness and the restricted permeability. Boulders may hinder site preparation and excavation. Selecting a nearby site with fewer boulders on the surface will help overcome this limitation.

Erosion is a serious hazard if the plant cover is removed during construction. Minimal removal of vegetation, mulching, and quickly establishing plant cover help to control erosion and sedimentation.

The capability subclass is 7s.

# 188B—Cavode silt loam, 3 to 8 percent slopes

This soil is gently sloping, very deep, and somewhat poorly drained. It occurs on side slopes and concave toeslopes on uplands that receive runoff from the higher adjacent slopes. Individual areas are oblong or irregularly shaped, and range from 5 to 30 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 2 inches, very dark grayish brown silt loam with 5 percent channers

#### Subsoil:

2 to 7 inches, brown friable silt loam with 5 percent channers

7 to 14 inches, brown friable silt loam, with strong brown iron accumulations and light brownish gray iron depletions and 10 percent channers

- 14 to 32 inches, light brownish gray firm silty clay loam, with strong brown iron accumulations and light brownish gray iron depletions and 10 percent channers
- 32 to 44 inches, light brownish gray firm channery silty clay, with strong brown iron accumulations and light brownish gray iron depletions and 15 percent channers
- 44 to 52 inches, brown firm channery silty clay, with strong brown iron accumulations and gray iron depletions and 25 percent channers

#### Substratum:

52 to 68 inches, brown firm very channery silty clay loam, with strong brown iron accumulations and 45 percent channers

68 inches, gray siltstone and fine-grained sandstone bedrock

Included in mapping are small areas of poorly drained Brinkerton soils along drainageways and in slight depressions, and small areas of somewhat poorly drained Portville soils which have a fragipan. Areas of moderately well drained Buchanan soils may be included on higher spots of the unit. Areas of similar, but poorly drained soils are included along drainageways and slight depressions. Included areas make up about 10 to 20 percent of this unit.

## Soil properties—

Permeability: Moderate or moderately slow in the surface layer and upper part of the subsoil, and slow in the lower part of the subsoil and substratum

Available water capacity: Moderate or high

Soil reaction: Extremely acid to strongly acid throughout the profile Water table: At a depth of 0.5 to 1.5 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 60 inches

Most of the acreage is in woodland, or is idle land that is reverting to woodland. Some areas are used for small grain, corn, or hay grown in support of dairy farming.

This soil is moderately well suited to most of the crops commonly grown in the county. Unless a drainage system is installed, planting is delayed in spring, harvesting may be difficult in fall, and the soil can be used only for short-season annual crops, hay or pasture. Erosion is a hazard in intensively cultivated areas on long slopes. Tilling only when the soil is at the proper moisture content minimizes the surface crusting and clodding. Interceptor drains can divert runoff, and tile and open-ditch drainage systems can remove excess water. Subsurface drains should be closely spaced because of the slow permeability in the subsoil. Contour farming and stripcropping in combination with diversions or grassed waterways help to control runoff and erosion. Rotating crops, incorporating crop residue into the soil, minimizing tillage, and growing cover crops help to maintain tilth and increase the content of organic matter. Because of natural acidity and low fertility, the soil requires sufficient applications of lime and fertilizer.

This soil is well suited to water-tolerant grasses and late-spring pasture. Overgrazing and grazing when the soil is wet are the main concerns in managing pasture. Grazing when the soil is wet causes surface compaction, restricts plant growth, depletes the stand of pasture grasses, and increases the hazard of erosion. Plants respond well to applications of lime and fertilizer. Using proper stocking rates, rotating livestock grazing, deferring grazing when the soil is wet, controlling brush and weeds, and selecting water-tolerant species for seeding are the main management conce.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is

moderate. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand the seasonal wetness grow best.

The depth to saturated zone and shrink-swell potential are the main limitations if this soil is used as a site for dwellings with basements. Installing drains around footings, and sealing foundations and basement walls will help to prevent excessive wetness in basements. Installing interceptor drains and diversion ditches in upslope areas diverts surface and subsurface water from the dwellings.

Depth to saturated zone, frost action, and shrink-swell potential are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material, and installing roadside drainage systems help to overcome the wetness limitations, reduce shrink-swell potential, and reduce the potential for frost action.

The depth to saturated zone and the restricted permeability are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system in the area around the absorption field reduces the seasonal wetness, and adding permeable fill material helps to overcome the restricted permeability.

Erosion is a hazard on construction sites. Minimal removal of vegetation, mulching, and quickly establishing plant cover help to control erosion and sedimentation. Recompacting this soil after it has been disturbed commonly is difficult because of the high content of clay.

The capability subclass is 3w.

# 188C—Cavode silt loam, 8 to 15 percent slopes

This soil is strongly sloping, very deep, and somewhat poorly drained. It occurs on side slopes and toeslopes on uplands that receive runoff from the higher adjacent slopes. Individual areas are oblong or irregularly shaped, and range from 5 to 30 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 2 inches, very dark grayish brown silt loam with 5 percent channers

#### Subsoil

2 to 7 inches, brown friable silt loam with 5 percent channers

7 to 14 inches, brown friable silt loam, with strong brown iron accumulations and light brownish gray iron depletions and 10 percent channers

14 to 32 inches, light brownish gray firm silty clay loam, with strong brown iron accumulations and light brownish gray iron depletions and 10 percent channers

32 to 44 inches, light brownish gray firm channery silty clay, with strong brown iron accumulations and light brownish gray iron depletions and 15 percent channers

44 to 52 inches, brown firm channery silty clay, with strong brown iron accumulations and gray iron depletions and 25 percent channers

#### Substratum:

52 to 68 inches, brown firm very channery silty clay loam, with strong brown iron accumulations and 45 percent channers

68 inches, gray siltstone and fine-grained sandstone bedrock

Included in mapping are small areas of poorly drained Brinkerton soils along drainageways and in slight depressions, and small areas of somewhat poorly drained Portville soils which have a fragipan. Areas of moderately well drained Buchanan

soils may be included on higher spots of the unit. Areas of similar, but poorly drained soils are included along drainageways and slight depressions. Included areas make up about 10 to 20 percent of this unit.

## Soil properties—

*Permeability:* Moderate or moderately slow in the surface layer and upper part of the subsoil, and slow in the lower part of the subsoil and substratum

Available water capacity: Moderate or high

Soil reaction: Extremely acid to strongly acid throughout the profile Water table: At a depth of 0.5 to 1.5 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 60 inches

Most of the acreage is in woodland, or is idle land that is reverting to woodland. Some areas are used for cultivated crops in support of dairy farming.

This soil is moderately well suited to cultivated crops. Erosion is a hazard where cultivated crops are grown. The seasonal wetness delays planting in spring and makes harvesting difficult in fall. Tilling, only when the soil is at the proper moisture content, minimizes surface crusting and clodding. Interceptor drains can divert runoff and subsurface seepage from higher adjacent soils, and thus reduce the hazard of erosion. Tile drains generally should be closely spaced because of the slowly permeable, clayey subsoil. Growing cover crops, incorporating crop residue into the soil, and including sod crops in the cropping system help to maintain good tilth, increase the content of organic matter, and minimize crusting and clodding. These practices, along with farming on the contour and stripcropping, also reduce the hazard of erosion. Because of natural acidity and low fertility, the soil requires sufficient applications of lime and fertilizer. Areas where conservation practices cannot be applied are better suited to deep-rooted legumes than to cultivated crops.

This soil is moderately well suited to water-tolerant hay and to late-spring pasture. Overgrazing and grazing when the soil is wet are the main management concerns. Grazing when the soil is wet causes surface compaction, restricts plant growth, depletes the stand of pasture grasses, and increases the hazard of erosion. Plants respond well to applications of lime and fertilizer. Using proper stocking rates, rotating livestock grazing, deferring grazing when the soil is wet, controlling brush and weeds, and selecting water-tolerant species for seeding are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion is moderate and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand the seasonal wetness grow best. Building logging roads and skid trails on the contour helps control erosion and minimizes gullying along the trails.

The depth to saturated zone, slope, and shrink-swell potential are the main limitations if this soil is used as a site for dwellings with basements. Installing drains around footings, and sealing foundations and basement walls will help to prevent excessive wetness in basements. Installing interceptor drains and diversion ditches in upslope areas diverts surface and subsurface water from the dwellings. Land grading and building on the contour help to overcome the slope limitation.

Depth to saturated zone, frost action, slope, and shrink-swell potential are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material, and installing roadside drainage systems help to overcome the wetness limitations, reduces shrink-swell potential, and reduces the potential for frost action. Land grading and building on the contour help to overcome the slope limitation.

The depth to saturated zone and the restricted permeability are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and

design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system in the area around the absorption field reduces the seasonal wetness, and adding permeable fill material helps to overcome the restricted permeability.

Erosion is a serious hazard on construction sites. Minimal removal of vegetation, mulching, and quickly establishing plant cover help to control erosion and sedimentation. Recompacting this soil after it has been disturbed commonly is difficult because of the content of clay.

The capability subclass is 3e.

# 188D—Cavode silt loam, 15 to 25 percent slopes

This soil is moderately steep, very deep, and somewhat poorly drained. It occurs on side slopes on uplands that receive runoff from the higher adjacent slopes. Individual areas are oblong or irregularly shaped, and range from 5 to 30 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 2 inches, very dark grayish brown silt loam with 5 percent channers

#### Subsoil

2 to 7 inches, brown friable silt loam with 5 percent channers

- 7 to 14 inches, brown friable silt loam, with strong brown iron accumulations and light brownish gray iron depletions and 10 percent channers
- 14 to 32 inches, light brownish gray firm silty clay loam, with strong brown iron accumulations and light brownish gray iron depletions and 10 percent channers
- 32 to 44 inches, light brownish gray firm channery silty clay, with strong brown iron accumulations and light brownish gray iron depletions and 15 percent channers
- 44 to 52 inches, brown firm channery silty clay, with strong brown iron accumulations and gray iron depletions and 25 percent channers

#### Substratum.

52 to 68 inches, brown firm very channery silty clay loam, with strong brown iron accumulations and 45 percent channers

68 inches, gray siltstone and fine-grained sandstone bedrock

Included in mapping are small areas of poorly drained Brinkerton soils along drainageways and in slight depressions, and small areas of somewhat poorly drained Portville soils which have a fragipan. Areas of moderately well drained Buchanan soils may be included on higher spots of the unit. Areas of similar, but poorly drained soils, are included along drainageways and slight depressions. Included areas make up about 10 to 20 percent of this unit.

#### Soil properties—

Permeability: Moderate or moderately slow in the surface layer and upper part of the subsoil, and slow in the lower part of the subsoil and substratum

Available water capacity: Moderate or high

Soil reaction: Extremely acid to strongly acid throughout the profile Water table: At a depth of 0.5 to 1.5 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 60 inches

Most of the acreage is in woodland. Some areas are idle land that is reverting to brush. A few areas are used for hay or pasture.

This soil is poorly suited to cultivated crops because of the slope and the severe hazard of erosion. Moderately steep slopes limit the use of farm equipment.

Cultivated crops should be grown only occasionally, and the maximum number of conservation practices should be used. Areas where conservation practices cannot be applied are better suited to deep-rooted legumes than to cultivated crops. Tilling, only when the soil is at the proper moisture content, minimizes the surface crusting and clodding. Growing cover crops, minimizing tillage, and establishing diversions that break up long slopes and divert excess runoff help to control erosion. Where the slope permits, farming on the contour and stripcropping are suitable. Because tilling the soil is difficult and erosion is a hazard, long-term sod crops are more practical than most other crops. Applying a sufficient amount of lime and fertilizer is needed to maintain good crop growth.

This soil is generally better suited to hay and pasture than to cultivated crops. Grazing when the soil is wet and overgrazing are main concerns in managing pasture. Grazing when the soil is wet causes surface compaction and damage to the pasture. Overgrazing increases the hazard of erosion. Plowing across the slope and leaving strips of sod help to control erosion when an area is reseeded. Rotating livestock grazing, using proper stocking rates, controlling weeds and brush, deferring grazing when the soil is wet, and applying the proper kinds and amounts of lime and fertilizer are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion is moderate and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand the seasonal wetness grow best. Building logging roads and skid trails on the contour helps control erosion and minimizes gullying along the trails.

The depth to saturated zone, slope, and shrink-swell potential are the main limitations if this soil is used as a site for dwellings with basements. Installing drains around footings, and sealing foundations and basement walls will help to prevent excessive wetness in basements. Installing interceptor drains and diversion ditches in upslope areas diverts surface and subsurface water from the dwellings. Land grading and building on the contour help to overcome the slope limitation.

Depth to saturated zone, frost action, slope, and shrink-swell potential are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems help to overcome the wetness limitations, reduces shrink-swell potential, and reduces the potential for frost action. Land grading and building on the contour help to overcome the slope limitation.

The slope, depth to saturated zone, and the restricted permeability are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Land grading and building on the contour help to overcome the slope. Installing a drainage system in the area around the absorption field reduces the seasonal wetness, and adding permeable fill material helps to overcome the restricted permeability.

Erosion is a serious hazard on construction sites. Minimal removal of vegetation, mulching, and quickly establishing plant cover help to control erosion and sedimentation. Recompacting this soil after it has been disturbed commonly is difficult because of the content of clay.

The capability subclass is 4e.

# 189B—Portville silty clay loam, 3 to 8 percent slopes, extremely bouldery

This soil is gently sloping, very deep, and somewhat poorly drained. It is on hillsides, lower colluvial side slopes, and concave toeslopes that receive runoff from

the higher adjacent soils. There are many boulders and stones which cover 3 to 15 percent of the surface. Individual areas are oblong or irregularly shaped, and range from 5 to 75 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 7 inches, dark grayish brown silty clay loam with 10 percent channers

## Subsurface layers:

7 to 12 inches, pale brown friable channery silt loam, with strong brown iron accumulations and light brownish gray iron depletions, and 15 percent channers

12 to 22 inches, light brownish gray and dark yellowish brown, friable and firm, channery silt loam, with strong brown iron accumulations and light brownish gray iron depletions, and 20 percent channers

#### Subsoil:

22 to 35 inches, yellowish brown very firm channery silt loam, with strong brown iron accumulations and light brownish gray iron depletions, and 20 percent channers

35 to 50 inches, yellowish brown very firm channery silt loam, with strong brown iron accumulations and light brownish gray iron depletions, and 30 percent channers

#### Substratum:

50 to 60 inches, yellowish brown firm channery silty clay loam, with gray iron depletions, and 15 percent channers

60 to 72 inches, yellowish brown firm very gravelly silty clay loam, with 40 percent gravel

Included in mapping are small areas of poorly drained Brinkerton soils in slight depressions and along drainageways, and Cavode soils which have more clay in the subsoil than the Portville soil. Also included are small areas of moderately well drained Buchanan soils in more sloping areas, and small areas of soils having bedrock within a depth of 40 inches. Areas that are stony, and areas that have more boulders on the surface are also included. Included areas make up about 15 to 25 percent of this unit.

#### Soil properties—

Permeability: Moderate or moderately slow in the surface and subsurface layers, and moderately slow or slow in the fragipan and substratum

Available water capacity: Very low to moderate

Soil reaction: Very strongly acid to moderately acid in the surface layer, subsurface layer, and subsoil; and very strongly acid to slightly acid in the substratum Water table: Perched at a depth of 0.5 to 1.5 feet from November through May Flooding hazard: None

Depth to bedrock: More than 6 feet

Most of the acreage is in woodland. There are some areas that have been pastured and are reverting to woodland.

This soil is not suited to cultivated crops due to the excessive amounts of boulders on the surface. Boulders make mechanical cultivation and harvesting activities impractical or impossible.

This soil is poorly suited to pasture. Boulders on the surface limit reseeding and the application of lime and fertilizer. Overgrazing and grazing when the soil is wet are concerns in managing pasture. Grazing when the soil is wet causes surface compaction, restricts plant growth, and can deplete the stand of pasture grasses, and thus result in serious erosion.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is

moderate. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand the seasonal wetness grow best. Excessive surface boulders limit the use of logging equipment.

The depth to saturated zone, shrink-swell potential, and boulders are the main limitations if this soil is used as a site for dwellings with basements. Installing drains around footings, and sealing foundations and basement walls will help to prevent excessive wetness in basements. Installing interceptor drains and diversion ditches in upslope areas diverts surface and subsurface water from the dwellings. Boulders and large stones on the soil surface can make excavation difficult and costly.

Depth to saturated zone, frost action, shrink-swell potential and boulders are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems help to overcome the wetness limitation, reduces shrink-swell potential, and reduces the potential for frost action. Boulders and large stones on the soil surface can make excavation difficult and costly.

The depth to saturated zone, depth to dense material, restricted permeability, and surface rock fragments are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system in the area around the absorption field reduces the seasonal wetness, and adding permeable fill material helps to overcome the seasonal wetness and the restricted permeability. Boulders may hinder site preparation and excavation. The selection of a nearby site that is better drained and has fewer boulders will help overcome these limitations.

Erosion is a moderate hazard if the plant cover is removed during construction. Minimal removal of vegetation, mulching, and quickly establishing plant cover help to control erosion and sedimentation.

The capability subclass is 7s.

# 189C—Portville silty clay loam, 8 to 15 percent slopes, extremely bouldery

This soil is strongly sloping, very deep, and somewhat poorly drained. It is on hillsides, lower colluvial side slopes, and concave toeslopes that receive runoff from the higher adjacent soils. There are many boulders and stones that cover 3 to 15 percent of the surface. Individual areas are oblong or rectangular, and range from 10 to 50 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 7 inches, dark grayish brown silty clay loam with 10 percent channers

#### Subsurface layers:

7 to 12 inches, pale brown friable channery silt loam, with strong brown iron accumulations and light brownish gray iron depletions, and 15 percent channers
12 to 22 inches, light brownish gray and dark yellowish brown, friable and firm, channery silt loam, with strong brown iron accumulations and light brownish gray iron depletions, and 20 percent channers

#### Subsoil:

22 to 35 inches, yellowish brown very firm channery silt loam, with strong brown iron accumulations and light brownish gray iron depletions, and 20 percent channers 35 to 50 inches, yellowish brown very firm channery silt loam, with strong brown iron accumulations and light brownish gray iron depletions, and 30 percent channers

Substratum:

50 to 60 inches, yellowish brown firm channery silty clay loam, with gray iron depletions, and 15 percent channers

60 to 72 inches, yellowish brown firm very gravelly silty clay loam, with 40 percent gravel

Included in mapping are small areas of poorly drained Brinkerton soils in slight depressions and along drainageways, and Cavode soils which do have more clay in the subsoil than the Portville soil. Also included are small areas of moderately well drained Buchanan soils in more sloping areas and small areas of soils having bedrock within a depth of 40 inches. Areas that are stony and areas that have more boulders on the surface are also included. Included areas make up about 15 to 25 percent of this unit.

## Soil properties—

Permeability: Moderate or moderately slow in the surface and subsurface layers, and moderately slow or slow in the fragipan and substratum

Available water capacity: Very low to moderate

Soil reaction: Very strongly acid to moderately acid in the surface layer, subsurface layer, and subsoil; and very strongly acid to slightly acid in the substratum Water table: Perched at a depth of 0.5 to 1.5 feet from November through May Flooding hazard: None

Depth to bedrock: More than 6 feet

Most of the acreage is in woodland. There are some areas that have been pastured and are reverting to woodland.

This soil is not suited to cultivated crops due to the excessive amounts of boulders on the surface. Boulders on the surface make mechanical cultivation and harvesting activities impractical or impossible.

This soil is poorly suited to pasture. Boulders on the surface limit reseeding and the application of lime and fertilizer. Overgrazing and grazing when the soil is wet are concerns in managing pasture. Grazing when the soil is wet causes surface compaction, restricts plant growth, and can deplete the stand of pasture grasses, and thus result in serious erosion.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand the seasonal wetness grow best. Excessive surface boulders limit the use of logging equipment. Building logging roads and skid trails on the contour helps control erosion and minimizes gullying along the trails

The depth to saturated zone, slope, shrink-swell potential, and boulders are the main limitations if this soil is used as a site for dwellings with basements. Installing drains around footings, and sealing foundations and basement walls will help to prevent excessive wetness in basements. Installing interceptor drains and diversion ditches in upslope areas diverts surface and subsurface water from the dwellings. Land grading and building on the contour help to overcome the slope limitation. Boulders and large stones on the soil surface can make excavation difficult and costly.

Depth to saturated zone, frost action, slope, shrink-swell potential, and boulders are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material, and installing roadside drainage systems help to overcome the wetness limitation, reduces shrink-swell potential, and reduces the potential for frost action. Land grading and building on the contour help to overcome the slope limitation. Boulders and large stones on the soil surface can make excavation difficult and costly.

The depth to saturated zone, depth to dense material, restricted permeability, and surface rock fragments are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Installing a drainage system in the area around the absorption field reduces the seasonal wetness, and adding permeable fill material helps to overcome the seasonal wetness and the restricted permeability. Boulders may hinder site preparation and excavation. Selecting a nearby site with fewer boulders on the surface will help overcome this limitation.

Erosion is a serious hazard if the plant cover is removed during construction. Minimal removal of vegetation, mulching, and quickly establishing plant cover help to control erosion and sedimentation.

The capability subclass is 7s.

# 195C—Mandy channery silt loam, 3 to 15 percent slopes, extremely bouldery

This soil is gently sloping and strongly sloping, moderately deep, and well drained. It is on hilltops that receive little or no runoff from higher adjacent soils and side slopes that receive some runoff from higher adjacent soils. It is in areas where the topography is influenced by the underlying bedrock. Sandstone and siltstone bedrock is at a depth of 20 to 40 inches. It occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. Boulders and large stones cover 3 to 15 percent of the surface. Individual areas are oblong or rectangular, and range from 10 to 75 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 2 inches, very dark brown channery silt loam 20 percent channers

#### Subsoil:

2 to 13 inches, strong brown very friable channery silt loam, with 30 percent channers 13 to 24 inches, yellowish brown friable very channery silt loam, with 50 percent channers

24 to 33 inches, yellowish brown very friable extremely flaggy silt loam, with 65 percent flagstones and channers

33 inches, fractured siltstone and sandstone bedrock

Included in mapping are small areas of moderately well drained soils, and well drained Carrollton soils which have less rock fragments in the subsoil and more clay than Mandy soils. Well drained Kinzua soils are included where the bedrock is deeper than 40 inches below the surface. Areas which are almost covered with boulders are present in spots, especially along drainageways. Also included are areas where the bedrock is within 20 inches of the surface. Included areas make up about 10 to 20 percent of this unit.

# Soil properties—

Permeability: Moderate throughout the profile Available water capacity: Very Low to moderate

Soil reaction: Extremely acid to strongly acid throughout the profile

Water table: At a depth of more than 6 feet

Flooding hazard: None

Depth to bedrock: 20 to 40 inches

Most of the acreage of this soil is in woodland. A few areas are used for unimproved pasture.

This soil is not suited to cultivated crops or hay due to boulders on the surface. The boulders make mechanical cultivation and harvesting activities impractical or impossible.

This soil is poorly suited to pasture. Some areas may support unimproved pasture. Boulders on the surface hinder reseeding. Overgrazing is the main concern in managing pasture because it can damage native pasture plants. Grazing when the soil is wet early in spring can result in surface compaction, damage to the pasture, and erosion. Using proper stocking rates, controlling weeds and brush, and deferring grazing when the soil is wet are the main management concerns.

The potential productivity of this soil for northern red oak is moderately high. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is moderate. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Excessive surface boulders limit the use of logging equipment.

The depth to bedrock, surface boulders, and slope are the main limitations if this soil is used as a site for dwellings with basements. Bedrock and boulders on the soil surface can make excavation difficult and costly. Land grading and building on the contour help to overcome the slope limitation.

Slope, frost action, boulders, and depth to bedrock are the main limitations if this soil is used as a site for local roads and streets. Careful planning and layout of roads and streets will minimize excavation and help to overcome the limitations of boulders and depth to bedrock. Adding coarse textured subgrade or base material will reduce the potential for frost action.

Depth to bedrock and surface rock fragments are limitations if this soil is used as a site for septic tank absorption fields. Bedrock and boulders on the surface can make excavation difficult and costly. Care is needed to prevent the contamination of ground water resulting from seepage through the jointed and fractured bedrock. The absorption field should be installed in suitable fill material.

Erosion is a hazard on construction sites. Minimal removal of vegetation, mulching, and quickly establishing plant cover help to control erosion and sedimentation.

The capability subclass is 7s.

# 195D—Mandy channery silt loam, 15 to 25 percent slopes, extremely bouldery

This soil is moderately steep, moderately deep, and well drained. It is on uniformly sloping valley sides that receive runoff from higher adjacent soils. It is in areas where the topography is influenced by the underlying bedrock. Sandstone and siltstone bedrock is at a depth of 20 to 40 inches. It occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. Boulders and large stones cover 3 to 15 percent of the surface. Individual areas are oblong or rectangular, and range from 10 to 75 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 2 inches, very dark brown channery silt loam 20 percent channers

#### Subsoil:

2 to 13 inches, strong brown very friable channery silt loam, with 30 percent channers 13 to 24 inches, yellowish brown friable very channery silt loam, with 50 percent channers

24 to 33 inches, yellowish brown very friable extremely flaggy silt loam, with 65 percent flagstones and channers

33 inches, fractured siltstone and sandstone bedrock

Included in mapping are small areas of similar but moderately well drained soil, and well drained Carrollton soils which have less rock fragments in the subsoil and more clay than Mandy soils. Well drained Kinzua soils are included where the bedrock is deeper than 40 inches below the surface. Areas which are almost covered with boulders are present in spots, especially along drainageways. Also included are areas where the bedrock is within 20 inches of the surface. Included areas make up about 10 to 20 percent of this unit.

## Soil properties—

Permeability: Moderate throughout the profile Available water capacity: Very low to moderate

Soil reaction: Extremely acid to strongly acid throughout the profile

Water table: At a depth of more than 6 feet

Flooding hazard: None

Depth to bedrock: 20 to 40 inches

Most of the acreage of this soil is in woodland. A few areas are used for unimproved pasture.

This soil is not suited to cultivated crops or hay due to boulders on the surface and moderately steep slopes. The boulders make mechanical cultivation and harvesting activities impractical or impossible.

This soil is poorly suited to pasture. Some areas may support unimproved pasture. Boulders on the surface hinder reseeding. Overgrazing is the main concern in managing pasture because it can damage native pasture plants. Grazing when the soil is wet early in spring can result in surface compaction, damage to the pasture, and erosion. Using proper stocking rates, controlling weeds and brush, and deferring grazing when the soil is wet are the main management concerns.

The potential productivity of this soil for northern red oak is moderately high. The hazard of off-road or off-trail erosion is moderate and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Excessive surface boulders limit the use of logging equipment.

The depth to bedrock, surface boulders, and slope are the main limitations if this soil is used as a site for dwellings with basements. Bedrock and boulders on the soil surface can make excavation difficult and costly. Land grading and building on the contour help to overcome the slope limitation.

Slope, frost action, surface boulders, and depth to bedrock are the main limitations if this soil is used as a site for local roads and streets. Careful planning and layout of roads and streets will minimize excavation and help to overcome the limitations of boulders, depth to bedrock, and slope. Adding coarse textured subgrade or base material will reduce the potential for frost action.

The slope, depth to bedrock, and surface rock fragments are limitations if this soil is used as a site for septic tank absorption fields. Bedrock and boulders on or near the surface can make excavation difficult and costly. Care is needed to prevent the contamination of ground water resulting from seepage through the jointed and fractured bedrock. The absorption field should be installed in suitable fill material. Extensive land modification is needed to overcome the slope.

Erosion is a serious hazard on construction sites. Minimal removal of vegetation, mulching, and quickly establishing plant cover help to control erosion and sedimentation.

The capability subclass is 7s.

# 195E—Mandy channery silt loam, 25 to 50 percent slopes, extremely bouldery

This soil is steep and very steep, moderately deep, and well drained. It is on uniformly sloping valley sides that receive runoff from higher adjacent soils. It is in areas where the topography is influenced by the underlying bedrock. Sandstone and siltstone bedrock is at a depth of 20 to 40 inches. It occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. Boulders and large stones cover 3 to 15 percent of the surface. Individual areas are oblong or rectangular, and range from 10 to 75 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 2 inches, very dark brown channery silt loam 20 percent channers

Subsoil:

2 to 13 inches, strong brown very friable channery silt loam, with 30 percent channers 13 to 24 inches, yellowish brown friable very channery silt loam, with 50 percent channers

24 to 33 inches, yellowish brown very friable extremely flaggy silt loam, with 65 percent flagstones and channers

33 inches, fractured siltstone and sandstone bedrock

Included in mapping are small areas of similar but moderately well drained soil, and well drained Carrollton soils which have less rock fragments in the subsoil and more clay than Mandy soils. Well drained Kinzua soils are included where the bedrock is deeper than 40 inches below the surface. Areas which are almost covered with boulders are present in spots, especially along drainageways. Also included are areas where the bedrock is within 20 inches of the surface. Included areas make up about 10 to 20 percent of this unit.

#### Soil properties—

Permeability: Moderate throughout the profile Available water capacity: Very low to moderate

Soil reaction: Extremely acid to strongly acid throughout the profile

Water table: At a depth of more than 6 feet

Flooding hazard: None

Depth to bedrock: 20 to 40 inches

Most areas are used as woodland and wildlife habitat. Some of the less sloping areas are idle, or are used as pasture.

This soil is not suited to cultivated crops or hay due to the steep slopes and boulders on the surface. Boulders and steep or very steep slopes make mechanical cultivation and harvesting activities impractical or impossible. A plant cover that controls runoff and erosion is essential.

This soil is poorly suited to pasture. Some areas may support unimproved pasture. Boulders on the surface and steep or very steep slopes hinder reseeding. Overgrazing is the main concern in managing pasture because it can damage native pasture plants. A good plant cover is needed. Prevention of overgrazing helps to protect the soil from erosion and gullying.

The potential productivity of this soil for northern red oak is moderately high. The hazard of off-road or off-trail erosion and the hazard of erosion on roads and trails are severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building logging roads and skid

trails on the contour helps control erosion and minimizes gullying along the trails. Excessive surface boulders limit the use of logging equipment.

The depth to bedrock, surface boulders, and slope are the main limitations if this soil is used as a site for dwellings with basements. Bedrock and boulders on the soil surface can make excavation difficult and costly. Land grading and building on the contour may help to overcome the slope limitation. Alternative sites should be considered for this use.

Slope, frost action, boulders, and depth to bedrock are the main limitations if this soil is used as a site for local roads and streets. Careful planning and layout of roads and streets will minimize excavation and help to overcome the limitations of steep or very steep slopes, boulders and depth to bedrock. Adding coarse textured subgrade or base material will reduce the potential for frost action.

The slope, depth to bedrock, and surface rock fragments are limitations if this soil is used as a site for septic tank absorption fields. Bedrock and boulders on or near the surface can make excavation difficult and costly. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Care is needed to prevent the contamination of ground water resulting from seepage through the jointed and fractured bedrock. Extensive land modification is needed to overcome the slope. Alternative sites should be considered for this use.

Erosion is a serious hazard on construction sites. Minimal removal of vegetation, mulching, and quickly establishing plant cover help to control erosion and sedimentation.

The capability subclass is 7s.

# 199C—Buchanan silt loam, 8 to 15 percent slopes, extremely bouldery

This soil is strongly sloping, very deep, and moderately well drained. It is on hillsides and lower colluvial side slopes that receive runoff from the higher adjacent soils. Boulders and large stones cover 3 to 15 percent of the soil surface. Individual areas are rectangular and range from 5 to 30 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 6 inches, dark grayish brown silt loam with 10 percent channers

Subsoil:

6 to 16 inches, yellowish brown very friable channery silt loam, with 15 percent channers

16 to 22 inches, yellowish brown friable channery silt loam, with 15 percent channers

22 to 33 inches, light olive brown firm channery clay loam, with light brownish gray iron depletions and strong brown iron accumulations, and 20 percent channers

33 to 45 inches, olive brown very firm channery silt loam, with light brownish gray iron depletions and strong brown iron accumulations, and 30 percent channers

Substratum:

45 to 72 inches, olive brown firm very gravelly silt loam, with 50 percent gravel

Included in mapping are small areas of the somewhat poorly drained Portville soils along drainageways and in seepage spots, and small areas of well drained Rayne soils on slight rises and knolls which do not have a fragipan. Also included are small areas of well drained Hartleton soils which have more channers in the subsoil and have bedrock within 40 to 60 inches of the surface, and small areas of Buchanan

soils that have channery fragments in the surface layer. Included areas make up about 10 to 20 percent of the unit.

## Soil properties—

Permeability: Moderate in the surface layer and subsoil above the fragipan, slow in the fragipan and substratum

Available water capacity: Low to high

Soil reaction: Extremely acid to strongly acid throughout the profile

Water table: Perched at a depth of 1.5 to 2.0 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most of the acreage of this soil is in woodland. A few areas are used for unimproved pasture.

This soil is not suited to cultivated crops or hay due to many boulders on the surface. The boulders make mechanical cultivation and harvesting activities impractical or impossible.

This soil is poorly suited to pasture. Some areas may support unimproved pasture. Boulders on the surface hinder reseeding. Overgrazing is the main concern in managing pasture because it can damage native pasture plants. Grazing when the soil is wet early in spring can result in surface compaction, damage to the pasture and erosion. Using proper stocking rates, controlling weeds and brush, and deferring grazing when the soil is wet are the main management concerns.

The potential productivity of this soil for northern red oak is moderately high. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building logging roads and skid trails on the contour helps control erosion and minimizes gullying along the trails. Excessive surface boulders limit the use of logging equipment.

The depth to saturated zone, slope, shrink-swell potential, and surface boulders are the main limitations if this soil is used as a site for dwellings with basements. Installing drains around footings, and sealing foundations and basement walls will help to prevent excessive wetness in basements. Installing interceptor drains and diversion ditches in upslope areas diverts surface and subsurface water from the dwellings. Land grading and building on the contour help to overcome the slope limitation. Boulders and large stones on the soil surface can make excavation difficult and costly.

Depth to saturated zone, slope, frost action, shrink-swell potential, and surface boulders are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material and installing roadside drainage systems help to overcome these limitations. Land grading and building on the contour help to overcome the slope limitation. Boulders and large stones on the soil surface can make excavation difficult and costly.

The depth to saturated zone, depth to dense material, restricted permeability, and surface rock fragments are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste systems are installed. Installing a drainage system in the area around the absorption field and adding permeable fill material help to overcome seasonal wetness and the restricted permeability. Large boulders on the surface and in the soil can make excavation costly. Suitable additional fill material may be needed.

Erosion is a hazard on construction sites. Minimal removal of vegetation, mulching, and quickly establishing plant cover help to control erosion and sedimentation.

The capability subclass is 7s.

# 199D—Buchanan silt loam, 15 to 25 percent slopes, extremely bouldery

This soil is moderately steep, very deep, and moderately well drained. It is on smooth colluvial hillsides and valley sides that receive runoff from the higher adjacent soils. Boulders and large stones cover 3 to 15 percent of the soil surface. Individual areas are oblong and narrow, and range from 10 to 40 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 6 inches, dark grayish brown silt loam with 10 percent channers

#### Subsoil:

6 to 16 inches, yellowish brown very friable channery silt loam, with 15 percent channers

16 to 22 inches, yellowish brown friable channery silt loam, with 15 percent channers
22 to 33 inches, light olive brown firm channery clay loam, with light brownish gray iron depletions and strong brown iron accumulations, and 20 percent channers
33 to 45 inches, olive brown very firm channery silt loam, with light brownish gray iron

depletions and strong brown iron accumulations, and 30 percent channers

Substratum:

45 to 72 inches, olive brown firm very gravelly silt loam, with 50 percent gravel

Included in mapping are small areas of the somewhat poorly drained Portville soils along drainageways and in seepage spots, and small areas of well drained Rayne soils on slight rises and knolls which do not have a fragipan. Also included are small areas of well drained Hartleton soils which have more channers in the subsoil and have bedrock within 40 to 60 inches of the surface, and small areas of Buchanan soils that have channery fragments in the surface layer. Included areas make up about 10 to 20 percent of the unit.

#### Soil properties—

Permeability: Moderate in the surface layer and subsoil above the fragipan, slow in the fragipan and substratum

Available water capacity: Low to high

Soil reaction: Extremely acid to strongly acid throughout the profile

Water table: Perched at a depth of 1.5 to 2.0 feet from November through May

Flooding hazard: None

Depth to bedrock: More than 6 feet

Most of the acreage of this soil is in woodland. A few areas are used for unimproved pasture.

This soil is not suited to cultivated crops or hay due to many boulders on the surface and the moderately steep slopes. The boulders and slopes make mechanical cultivation and harvesting activities impractical or impossible.

This soil is poorly suited to pasture. Some areas may support unimproved pasture. Boulders on the surface and the moderately steep slopes hinder reseeding. Overgrazing is the main concern in managing pasture because it can damage native pasture plants. Grazing when the soil is wet early in spring can result in surface compaction, damage to the pasture and erosion. Using proper stocking rates, controlling weeds and brush, and deferring grazing when the soil is wet are the main management concerns.

The potential productivity of this soil for northern red oak is moderately high. The hazard of off-road or off-trail erosion is moderate and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early

in spring, when the soil is moist, helps to ensure their survival. Building logging roads and skid trails on the contour helps control erosion and minimizes gullying along the trails. Excessive surface boulders limit the use of logging equipment.

The depth to saturated zone, slope, shrink-swell potential, and surface boulders are the main limitations if this soil is used as a site for dwellings with basements. Installing drains around footings and sealing foundations and basement walls will help to prevent excessive wetness in basements. Installing interceptor drains and diversion ditches in upslope areas diverts surface and subsurface water from the dwellings. Land grading and building on the contour help to overcome the slope limitation. Boulders and large stones on the soil surface can make excavation difficult and costly.

Slope, depth to saturated zone, frost action, shrink-swell potential, and surface boulders are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material, and installing roadside drainage systems help to overcome these limitations. Land grading and building on the contour help to overcome the slope limitation. Large boulders and stones in and on the soil surface can make excavation difficult and costly.

The slope, depth to saturated zone, depth to dense material, restricted permeability, and surface rock fragments are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste systems are installed. Extensive land modification is needed to overcome the moderately steep slopes. Installing a subsurface drainage system upslope from the absorption field and adding permeable fill material help to overcome seasonal wetness and the restricted permeability. Boulders and large stones on the surface hinder excavation.

Erosion is a hazard on construction sites. Minimal removal of vegetation, mulching, and quickly establishing plant cover help to control erosion and sedimentation.

The capability subclass is 7s.

# 289B—Ceres channery silt loam, 3 to 8 percent slopes

This soil is gently sloping, deep, and well drained. It is on hillsides and side slopes that receive runoff from the higher adjacent soils. It occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are oblong or rectangular, and range from 10 to 75 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 3 inches, very dark brown channery silt loam with 20 percent channers

#### Subsoil:

3 to 7 inches, reddish brown very friable channery silt loam with 15 percent channers 7 to 12 inches, dusky red very friable channery silt loam with 15 percent channers 12 to 22 inches, weak red friable channery silt loam, with 30 percent channers 22 to 29 inches, weak red friable very channery silty clay loam, with 40 percent channers

### Substratum:

29 to 44 inches, weak red firm extremely channery silt loam, with 75 percent channers

44 inches, dusky red interbedded shale and siltstone bedrock

Included in mapping are small areas of deeper, moderately well drained Eldred soils; well drained Kinzua soils; and reddish colored, somewhat poorly drained soils along drainageways and in seepage spots. Eldred and Kinzua soils are not as red in the subsoil and substratum. Carrollton soils, which have bedrock within a depth of 40

inches, are also included. Other inclusions are small areas similar to the Ceres soils, but brownish in color. Included areas make up about 10 to 20 percent of this unit.

## Soil properties—

Permeability: Moderate or moderately rapid throughout the profile

Available water capacity: Moderate or high

Soil reaction: Extremely acid to neutral in the solum, and very strongly acid to

moderately acid in the substratum

Water table: At a depth of more than 6.0 feet

Flooding hazard: None

Depth to bedrock: 40 to 60 inches

Most of the areas are wooded, and some of the acreage is idle land that is reverting to brush. Some areas have been cleared and are used for row crops, alfalfa, hay or pasture in support of dairy farming. This soil meets the requirements for prime farmland

This soil is well suited to all of the crops commonly grown in the county. The growing season is shorter for this soil than for nearby valley soils at lower elevations. The use of short-season or early maturing crop varieties is recommended. Lime is needed for most crops, especially legumes. Crops respond well to sufficient applications of fertilizer. Erosion may be a hazard if the soil is intensively cultivated and not protected by a plant cover. Incorporating crop residue into the soil, minimizing tillage, and growing cover crops help to maintain tilth and control erosion.

This soil is well suited to hay and pasture. It is especially suitable for grazing early in the growing season. Overgrazing can restrict plant growth and increase the hazard of erosion. Deep-rooted legumes grow well, but applications of lime and fertilizer are required to maintain the quality of stands and to ensure good plant growth. Using proper stocking rates, rotating livestock grazing, and controlling weeds and brush by mowing are good management practices.

The potential productivity of this soil for northern red oak is moderately high. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is moderate. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival.

Depth to bedrock is the main limitation if this soil is used as a site for dwellings with basements. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary. Installing drains around footings helps to remove any lateral seepage through fractures in the bedrock.

Frost action is the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material, and installing roadside drainage systems reduce the potential for frost action.

The depth to bedrock is a limitation if this soil is used as a site for septic tank absorption fields. Care is needed to prevent the contamination of ground water resulting from seepage through the jointed and fractured bedrock. Engineering and design modifications are needed if onsite waste disposal systems are installed. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary.

Erosion is a hazard on construction sites. Minimal removal of vegetation, mulching, and quickly establishing plant cover help to control erosion and sedimentation.

The capability subclass is 2e.

# 289C—Ceres channery silt loam, 8 to 15 percent slopes

This soil is strongly sloping, deep, and well drained. It is on hillsides and side slopes that receive runoff from the higher adjacent soils. It occurs at elevations above

1,800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are oblong or rectangular, and range from 10 to 75 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 3 inches, very dark brown channery silt loam with 20 percent channers

#### Subsoil:

3 to 7 inches, reddish brown very friable channery silt loam with 15 percent channers
7 to 12 inches, dusky red very friable channery silt loam with 15 percent channers
12 to 22 inches, weak red friable channery silt loam, with 30 percent channers
22 to 29 inches, weak red friable very channery silty clay loam, with 40 percent channers

#### Substratum:

29 to 44 inches, weak red firm extremely channery silt loam, with 75 percent channers

44 inches, dusky red interbedded shale and siltstone bedrock

Included in mapping are small areas of deeper moderately well drained Eldred soils, well drained Kinzua soils, and reddish colored somewhat poorly drained soils along drainageways and in seepage spots. Eldred and Kinzua soils are not as red in the subsoil and substratum. Carrollton soils, which have bedrock within a depth of 40 inches, are also included. Other inclusions are small areas similar to the Ceres soils, but brownish in color. Included areas make up about 10 to 20 percent of this unit.

## Soil properties—

Permeability: Moderate or moderately rapid throughout the profile

Available water capacity: Moderate or high

Soil reaction: Extremely acid to neutral in the solum, and very strongly acid to

moderately acid in the substratum Water table: At a depth of more than 6.0 feet

Flooding hazard: None

Depth to bedrock: 40 to 60 inches

Most of the areas are wooded, and some of the acreage is idle land that is reverting to brush. Some areas have been cleared and are used for row crops, alfalfa, hay or pasture in support of dairy farming.

This soil is moderately well suited to all of the crops commonly grown in the county. The growing season is shorter for this soil than for nearby valley soils at lower elevations. The use of short-season or early maturing crop varieties is recommended. Erosion is a hazard if the soil is intensively cultivated and not protected by a plant cover. Lime is needed for most crops, especially legumes. Crops respond well to sufficient applications of fertilizer. Incorporating crop residue into the soil, minimizing tillage, and growing cover crops help to maintain tilth and control erosion. Farming on the contour and stripcropping will help to control erosion and conserve water during the growing season.

This soil is well suited to hay and pasture. It is especially suitable for grazing early in the growing season. Overgrazing can restrict plant growth and increase the hazard of erosion. Deep-rooted legumes grow well, but applications of lime and fertilizer are required to maintain the quality of stands and to ensure good plant growth. Using proper stocking rates, rotating livestock grazing, and controlling weeds and brush by mowing are good management practices.

The potential productivity of this soil for northern red oak is moderately high. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in

spring, when the soil is moist, helps to ensure their survival. Building logging roads and skid trails on the contour helps control erosion and minimizes gullying along the trails

Slope and depth to bedrock are the limitations if this soil is used as a site for dwellings with basements. Land grading and shaping help to overcome the slope limitation. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary. Installing drains around footings helps to remove any lateral seepage through fractures in the bedrock.

Frost action and slope are the main limitations if this soil is used as a site for local roads and streets. Land modification and leveling may be necessary to overcome the slope limitation. Adding coarse textured subgrade or base material, and installing roadside drainage systems reduce the potential for frost action.

The depth to bedrock is a limitation if this soil is used as a site for septic tank absorption fields. Care is needed to prevent the contamination of ground water resulting from seepage through the jointed and fractured bedrock. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary.

Erosion is a hazard on construction sites. Minimal removal of vegetation, mulching, and quickly establishing plant cover help to control erosion and sedimentation.

The capability subclass is 3e.

# 289D—Ceres channery silt loam, 15 to 25 percent slopes

This soil is moderately steep, deep, and well drained. It is on hillsides and side slopes that receive runoff from the higher adjacent soils. It occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are oblong or rectangular, and range from 10 to 75 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 3 inches, very dark brown channery silt loam with 20 percent channers

#### Subsoil

3 to 7 inches, reddish brown very friable channery silt loam with 15 percent channers
7 to 12 inches, dusky red very friable channery silt loam with 15 percent channers
12 to 22 inches, weak red friable channery silt loam, with 30 percent channers
22 to 29 inches, weak red friable very channery silty clay loam, with 40 percent channers

#### Substratum:

29 to 44 inches, weak red firm extremely channery silt loam, with 75 percent channers

44 inches, dusky red interbedded shale and siltstone bedrock

Included in mapping are small areas of deeper moderately well drained Eldred soils, well drained Kinzua soils, and reddish colored somewhat poorly drained soils along drainageways and in seepage spots. Eldred and Kinzua soils are not as red in the subsoil and substratum. Carrollton soils, which have bedrock within a depth of 40 inches, are also included. Other inclusions are small areas similar to the Ceres soils, but brownish in color. Included areas make up about 10 to 20 percent of this unit.

## Soil properties—

Permeability: Moderate or moderately rapid throughout the profile Available water capacity: Moderate or high

Soil reaction: Extremely acid to neutral in the solum, and very strongly acid to

moderately acid in the substratum Water table: At a depth of more than 6.0 feet

Flooding hazard: None

Depth to bedrock: 40 to 60 inches

Most areas are used as woodland. Some areas are used for hay or pasture, or for limited use of row crops in support of dairy farming.

This soil is poorly suited to cultivated crops because of the hazard of erosion and slope. The growing season is shorter for this soil than for nearby valley soils at lower elevations. The use of short-season or early maturing crop varieties is recommended. Because of the moderately steep slopes, operating farm machinery is difficult and hazardous on this soil. Cultivated crops should be grown only occasionally, and the maximum number of conservation practices should be used to reduce the erosion hazard. Areas where conservation practices cannot be applied are better suited to deep-rooted legumes than to cultivated crops. Minimizing tillage, growing cover crops, incorporating crop residue into the soil, tilling across the slope, stripcropping, and including sod crops in the cropping system help to maintain good tilth, increase the content of organic matter, and control erosion.

This soil is better suited to hay and pasture than to cultivated crops. Overgrazing restricts plant growth and can deplete the stand of desirable pasture plants, especially in dry years. Erosion is a hazard in overgrazed areas. Using proper stocking rates, rotating livestock grazing, and controlling weeds and brush by mowing are good management practices. Because the soil is naturally acid, applications of lime are needed to improve the growth of most pasture plants.

The potential productivity of this soil for northern red oak is moderately high. The hazard of off-road or off-trail erosion is moderate and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building logging roads and skid trails on the contour helps control erosion and minimizes gullying along the trails.

The slope and depth to bedrock are the main limitations if this soil is used as a site for dwellings with basements. Land grading and shaping help to overcome the slope limitation. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary. Installing drains around footings helps to remove any lateral seepage through fractures in the bedrock.

Slope and frost action are the main limitations if this soil is used as a site for local roads and streets. Extensive land modification and leveling may be necessary to overcome the slope limitation. Adding coarse textured subgrade or base material, and installing roadside drainage systems reduce the potential for frost action.

The slope and depth to bedrock are limitations if this soil is used as a site for septic tank absorption fields. Care is needed to prevent the contamination of ground water resulting from seepage through the jointed and fractured bedrock. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary. Installing a drainage system in the area around the absorption fields and adding permeable fill material help to overcome any lateral seepage through fractures in the bedrock.

Erosion is a serious hazard on construction sites. Minimal removal of vegetation, mulching, and quickly establishing plant cover help to control erosion and sedimentation.

The capability subclass is 4e.

# 289E—Ceres channery silt loam, 25 to 35 percent slopes

This soil is steep, deep, and well drained. It is on hillsides and side slopes that receive runoff from the higher adjacent soils. It occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are oblong or rectangular, and range from 10 to 75 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 3 inches, very dark brown channery silt loam with 20 percent channers

#### Subsoil:

3 to 7 inches, reddish brown very friable channery silt loam with 15 percent channers
7 to 12 inches, dusky red very friable channery silt loam with 15 percent channers
12 to 22 inches, weak red friable channery silt loam, with 30 percent channers
22 to 29 inches, weak red friable very channery silty clay loam, with 40 percent channers

#### Substratum:

29 to 44 inches, weak red firm extremely channery silt loam, with 75 percent channers

44 inches, dusky red interbedded shale and siltstone bedrock

Included in mapping are small areas of deeper moderately well drained Eldred soils, well drained Kinzua soils, and reddish colored somewhat poorly drained soils along drainageways and in seepage spots. Eldred and Kinzua soils are not as red in the subsoil and substratum. Carrollton soils, which have bedrock within a depth of 40 inches, are also included. Other inclusions are small areas similar to the Ceres soils, but brownish in color. Included areas make up about 10 to 20 percent of this unit.

## Soil properties—

Permeability: Moderate or moderately rapid throughout the profile

Available water capacity: Moderate or high

Soil reaction: Extremely acid to neutral in the solum, and very strongly acid to

moderately acid in the substratum Water table: At a depth of more than 6.0 feet

Flooding hazard: None

Depth to bedrock: 40 to 60 inches

Most areas are wooded and provide habitat for wildlife. Some of the acreage is idle land, or is used as pasture.

This soil is not suited to cultivated crops or hay because of the slope and the very severe hazard of erosion. Operating farm equipment is very difficult because of the steep slope. A plant cover that controls runoff and erosion is essential.

This soil is poorly suited for pasture. A good plant cover needs to be maintained. Prevention of overgrazing helps to protect the soil from erosion and gullying. Reseeding pastures is difficult because of the slope.

The potential productivity of this soil for northern red oak is moderately high. The hazard of off-road or off-trail erosion is moderate and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building logging roads and skid trails on the contour helps control erosion and minimizes gullying along the trails.

The slope and depth to bedrock are the main limitations if this soil is used as a site for dwellings with basements. Land grading and shaping may help to overcome the slope limitation. The bedrock generally can be ripped with a backhoe. In some areas,

hard bedrock can make excavation difficult and costly, and blasting may be necessary. Installing drains around footings helps to remove any lateral seepage through fractures in the bedrock.

Slope and frost action are the main limitations if this soil is used as a site for local roads and streets. Extensive land modification and leveling may be necessary to overcome the slope limitation. Adding coarse textured subgrade or base material and installing roadside drainage systems reduce the potential for frost action.

The slope and depth to bedrock are limitations if this soil is used as a site for septic tank absorption fields. Care is needed to prevent the contamination of ground water resulting from seepage through the jointed and fractured bedrock. Extensive engineering and design modifications are necessary to overcome the slope. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary. The absorption field should be installed in suitable fill material.

Erosion is a serious hazard on construction sites. Minimal removal of vegetation, mulching, and quickly establishing plant cover help to control erosion and sedimentation. In most areas the native plant cover should not be removed. The capability subclass is 6e.

# 289F—Ceres channery silt loam, 35 to 50 percent slopes

This soil is very steep, deep, and well drained. It is on uniformly sloping hillsides and side slopes that receive runoff from the higher adjacent soils. It occurs at elevations above 1,800 feet, where the mean annual air temperature is less than 45 degrees F. Individual areas are oblong or rectangular, and range from 10 to 75 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 3 inches, very dark brown channery silt loam with 20 percent channers

#### Subsoil:

3 to 7 inches, reddish brown very friable channery silt loam with 15 percent channers
7 to 12 inches, dusky red very friable channery silt loam with 15 percent channers
12 to 22 inches, weak red friable channery silt loam, with 30 percent channers
22 to 29 inches, weak red friable very channery silty clay loam, with 40 percent channers

#### Substratum:

29 to 44 inches, weak red firm extremely channery silt loam, with 75 percent channers

44 inches, dusky red interbedded shale and siltstone bedrock

Included in mapping are small areas of deeper moderately well drained Eldred soils, well drained Kinzua soils, and reddish colored somewhat poorly drained soils along drainageways and in seepage spots. Eldred and Kinzua soils are not as red in the subsoil and substratum. Carrollton soils, which have bedrock within a depth of 40 inches, are also included. Other inclusions are small areas similar to the Ceres soils, but brownish in color. Included areas make up about 10 to 20 percent of this unit.

#### Soil properties—

Permeability: Moderate or moderately rapid throughout the profile

Available water capacity: Moderate or high

Soil reaction: Extremely acid to neutral in the solum, and very strongly acid to

moderately acid in the substratum

Water table: At a depth of more than 6.0 feet

Flooding hazard: None

Depth to bedrock: 40 to 60 inches

Most areas are wooded and provide habitat for wildlife.

This soil is not suited to cultivated crops, hay or pasture. The very steep slope and the very severe hazard of erosion are the main management concerns. The soil is too steep for the safe operation of farm machinery. A plant cover that controls runoff and erosion is essential.

The potential productivity of this soil for northern red oak is moderately high. The hazard of off-road or off-trail erosion and the hazard of erosion on roads and trails are severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building logging roads and skid trails on the contour helps control erosion and minimizes gullying along the trails.

Slope severely limits construction and is the main limitation if this soil is used as a site for dwellings with basements and local roads and streets. Extensive land modification may be necessary to overcome the slope. Alternative sites should be considered for these uses.

The depth to bedrock and the very steep slopes are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are necessary to overcome these limitations. Alternative sites should be considered for this use.

Erosion is a very severe hazard on construction sites. Minimizing the removal of vegetation, mulching, and quickly establishing plant cover, help to control erosion and sedimentation. In most areas the native plant cover should not be removed.

The capability subclass is 7e.

# 400—Wakeville silt loam

This soil is nearly level, very deep, and somewhat poorly drained. It occupies sections of flood plains along major streams in the northern part of the county. Individual areas are generally oblong in shape, and parallel to the adjacent streams. They range from 5 to 50 acres in size. Slope is generally smooth and ranges from 0 to 3 percent.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 10 inches, dark grayish brown silt loam

#### Subsoil:

10 to 16 inches, light olive brown friable silt loam, with gray iron depletions

16 to 34 inches, grayish brown friable silt loam, with yellowish brown iron accumulations and gray iron depletions

34 to 43 inches, dark grayish brown friable silt loam, with olive brown and yellowish brown iron accumulations

#### Substratum:

43 to 52 inches, grayish brown to gray friable silt loam, with yellowish brown iron accumulations

52 to 72 inches, very dark grayish brown very friable very gravelly loamy sand, with 45 percent gravel

Included with this soil in mapping are small areas of poorly drained Wayland soils in slight depressions and along older meander scars and oxbows. Also included are small areas of moderately well drained Teel soils on slightly higher areas of the flood

plains, and areas of Udifluvents and Fluvaquents, which consist of unconsolidated alluvial deposits. Where the alluvial soils adjoin glacial till deposits, there are small inclusions of very poorly drained till soils. These included soils make up about 15 to 25 percent of the unit.

## Soil properties—

Permeability: Moderate throughout the profile

Available water capacity: High

Soil reaction: Moderately acid to neutral to depth of 40 inches, and moderately acid to

slightly alkaline below that depth

Water table: At a depth of 0.5 to 1.5 feet from

November through May

Flooding hazard: Occasional, brief Depth to bedrock: More than 6 feet

Wakeville soils generally are cultivated, and used for row crops in support of dairy operations. There are some idle and woodland areas. These areas are generally small isolated sections which are difficult to farm. Where drained, this soil meets the requirements for prime farmland.

This soil is moderately well suited to cultivated crops. Flooding is a hazard. It can delay planting or damage crops in some years. The seasonal high water table also can delay tillage and planting, and make harvesting difficult, especially in low-lying areas. The wetness can be reduced by installing subsurface drains in areas where outlets are available. If a drainage system is installed, the soil is well suited to most of the crops commonly grown in the county. This soil has a stone free surface layer and can be easily tilled. Minimum tillage, incorporating crop residue into the soil, and growing cover crops and occasional sod crops help to maintain tilth and the content of organic matter. Measures that protect streambanks are needed in some areas to prevent lateral erosion into the fields.

Pasture and hay crops do well on this soil. Overgrazing and grazing when the soil is wet can cause compaction, deplete the stand of pasture plants, and restricted plant growth. Using proper stocking rates, rotating livestock grazing, controlling weeds and brush, and deferring grazing in spring are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion and the hazard of erosion on roads and trails are slight. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand the seasonal wetness grow best.

The hazard of flooding and the depth to saturated zone are the main limitations if this soil is used as a site for dwellings with basements. Fill material is needed to elevate the dwellings above the high water level during periods of flooding. Alternative sites that are better drained and not subject to flooding should be considered for this use.

The hazard of flooding, depth to saturated zone, and frost action are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material reduces the potential for frost action. Building on raised fill material reduces the hazard of flooding and helps to overcome the wetness.

The hazard of flooding and the depth to saturated zone are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modification are needed if onsite waste disposal systems are installed. Building on raised fill material helps to overcome the seasonal wetness and reduces the hazard of flooding. Alternative sites that are better drained and not subject to flooding should be considered for this use.

The capability subclass is 3w.

# 496B—Gilpin channery silt loam, 3 to 8 percent slopes

This soil is gently sloping, moderately deep, and well drained. It is on convex areas of broad hilltops that receive little or no runoff from higher adjacent soils. It is in areas where the topography is influenced by the underlying bedrock. Shale, siltstone or sandstone bedrock is at a depth of 20 to 40 inches. Individual areas are long and narrow, and range from 10 to 50 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface laver:

0 to 4 inches, very dark grayish brown channery silt loam with 15 percent channers

#### Subsoil:

4 to 16 inches, yellowish brown friable channery silt loam with 30 percent channers 16 to 26 inches, yellowish brown firm channery silty clay loam with 30 percent channers

#### Substratum:

26 to 35 inches, strong brown and grayish brown firm very channery silt loam and silty clay loam with 40 percent channers

35 inches, thinly bedded siltstone and sandstone bedrock

Included in mapping are areas of moderately well drained soils, and small areas of somewhat poorly drained Portville soils along drainageways and in seepage spots. Small areas of Rayne soils, which are very deep to bedrock, are also included. Some areas of well drained Hartleton soils, which are deep to bedrock and contain more rock fragments in the subsoil, are also included. In some areas the bedrock may be within 20 inches of the surface. Included areas make up about 10 to 20 percent of the unit.

## Soil properties—

Permeability: Moderate throughout the profile Available water capacity: Low or moderate

Soil reaction: Extremely acid or strongly acid throughout the profile Water table: At a depth of 2.0 to 3.3 feet from November through May

Flooding hazard: None

Depth to bedrock: 20 to 40 inches

Most areas are used for hay or pasture, or for row crops grown in support of dairy farming. Some areas that were formerly cleared for crop production are now idle, and are reverting to brush and trees. The remaining areas are wooded. This soil meets the requirements for prime farmland.

The soil is well suited to most of the crops commonly grown in the county. Erosion may be a hazard on long slopes in intensively cultivated areas. Contour farming and stripcropping in combination with diversions, terraces, or grassed waterways help to control erosion. Incorporating crop residue into the soil, rotating crops, minimizing tillage, and growing cover crops, help to maintain tilth, increase the content of organic matter, and control erosion. Crops respond well to applications of lime and fertilizer. Droughtiness is a limitation in some years.

This soil is well suited to hay and early spring pasture. Overgrazing restricts plant growth and can deplete the stand of desirable pasture plants, especially in dry years. Erosion is a hazard in overgrazed areas. Using proper stocking rates, rotating livestock grazing, controlling weeds and brush by mowing annually, and applying sufficient lime and fertilizer are good management practices.

The potential productivity of this soil for northern red oak is moderately high. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and

trails is moderate. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival.

The depth to bedrock is the main limitation if this soil is used as a site for dwellings with basements. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary. Installing drains around footings helps to remove any lateral seepage through fractures in the bedrock.

Frost action and depth to bedrock are the main limitations if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material reduces the potential for frost action. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary.

The depth to bedrock and depth to saturated zone are limitations if this soil is used as a site for septic tank absorption fields. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary. Care is needed to prevent the contamination of ground water resulting from seepage through the jointed and fractured bedrock. Installing a drainage system in the area around the absorption field and adding permeable fill material help to overcome seasonal wetness.

Erosion is a hazard on construction sites. Minimizing the removal of vegetation, mulching, and quickly establishing plant cover, helps to control erosion and sedimentation.

The capability subclass is 2e.

# 496C—Gilpin channery silt loam, 8 to 15 percent slopes

This soil is strongly sloping, moderately deep, and well drained. It is on convex areas of broad hilltops that receive little or no runoff from higher adjacent soils. It is in areas where the topography is influenced by the underlying bedrock. Shale, siltstone or sandstone bedrock is at a depth of 20 to 40 inches. Individual areas are long and narrow, and range from 10 to 50 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 4 inches, very dark grayish brown channery silt loam with 15 percent channers

Subsoil<sup>,</sup>

4 to 16 inches, yellowish brown friable channery silt loam with 30 percent channers 16 to 26 inches, yellowish brown firm channery silty clay loam with 30 percent channers

Substratum:

26 to 35 inches, strong brown and grayish brown firm very channery silt loam and silty clay loam with 40 percent channers

35 inches, thinly bedded siltstone and sandstone bedrock

Included in mapping are areas of moderately well drained soils, and small areas of somewhat poorly drained Portville soils along drainageways and in seepage spots. Small areas of Rayne soils, which are very deep to bedrock, are also included. Some areas of well drained Hartleton soils, which are deep to bedrock and contain more rock fragments in the subsoil, are also included. In some areas the bedrock may be within 20 inches of the surface. Included areas make up about 10 to 20 percent of the unit.

## Soil properties—

Permeability: Moderate throughout the profile

Available water capacity: Low or moderate

Soil reaction: Extremely acid or strongly acid throughout the profile

Water table: At a depth of more than 6 feet

Flooding hazard: None

Depth to bedrock: 20 to 40 inches

Some areas are used for hay or pasture, or for row crops grown in support of dairy farming. Many areas that were formerly cleared for crop production are now idle, and are reverting to brush and trees. The remaining areas are wooded.

The soil is moderately well suited to most of the crops commonly grown in the county. Erosion is a moderate hazard in intensively cultivated areas. Contour farming and stripcropping in combination with diversions, terraces, or grassed waterways help to control erosion. Incorporating crop residue into the soil, rotating crops, minimizing tillage, and growing cover crops, help to maintain tilth, increase the content of organic matter, and control erosion. Crops respond well to applications of lime and fertilizer. Droughtiness is a limitation in some years.

This soil is well suited to hay and early spring pasture. Overgrazing restricts plant growth and can deplete the stand of desirable pasture plants, especially in dry years. Erosion is a hazard in overgrazed areas. Using proper stocking rates, rotating livestock grazing, controlling weeds and brush by mowing annually, and applying sufficient lime and fertilizer are good management practices.

The potential productivity of this soil for northern red oak is moderately high. The hazard of off-road or off-trail erosion is slight and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building logging roads and skid trails on the contour helps control erosion, and minimizes gullying along the trails.

The depth to bedrock and the slope are the main limitations if this soil is used as a site for dwellings with basements. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary. Installing drains around footings helps to remove any lateral seepage through fractures in the bedrock. Land modification and leveling may be necessary to overcome the slope limitation.

Frost action, slope, and the depth to bedrock are the main limitations if this soil is used as a site for local roads and streets. Land modification and leveling may be necessary to overcome the slope limitation. Adding coarse textured subgrade or base material reduces the potential for frost action. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary.

The depth to bedrock is a limitation if this soil is used as a site for septic tank absorption fields. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary. Care is needed to prevent the contamination of ground water resulting from seepage through the jointed and fractured bedrock. The absorption field should be installed in suitable fill material.

Erosion is a hazard on construction sites. Minimizing removal of vegetation, mulching, and quickly establishing plant cover help to control erosion and sedimentation.

The capability subclass is 3e.

# 496D—Gilpin channery silt loam, 15 to 25 percent slopes

This soil is moderately steep, moderately deep, and well drained. It is on uniformly sloping valley sides that receive runoff from the higher adjacent soils. It is in areas

where the topography is influenced by the underlying bedrock. Shale, siltstone or sandstone bedrock is at a depth of 20 to 40 inches. Individual areas are long and narrow, and range from 10 to 50 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 4 inches, very dark grayish brown channery silt loam with 15 percent channers

#### Subsoil:

4 to 16 inches, yellowish brown friable channery silt loam with 30 percent channers 16 to 26 inches, yellowish brown firm channery silty clay loam with 30 percent channers

#### Substratum:

26 to 35 inches, strong brown and grayish brown firm very channery silt loam and silty clay loam with 40 percent channers

35 inches, thinly bedded siltstone and sandstone bedrock

Included in mapping are areas of moderately well drained soils, and small areas of somewhat poorly drained Portville soils along drainageways and in seepage spots. Small areas of Rayne soils, which are very deep to bedrock, are also included. Some areas of well drained Hartleton soils, which are deep to bedrock and contain more rock fragments in the subsoil, are also included. In some areas the bedrock may be within 20 inches of the surface. Included areas make up about 10 to 20 percent of the unit.

## Soil properties—

Permeability: Moderate throughout the profile Available water capacity: Low or moderate

Soil reaction: Extremely acid or strongly acid throughout the profile

Water table: At a depth of more than 6 feet

Flooding hazard: None

Depth to bedrock: 20 to 40 inches

Most areas are used as woodland. Some areas are used for hay or pasture, or for row crops grown in support of dairy farming.

This soil is poorly suited to cultivated crops because of the hazard of erosion and the moderately steep slope. Cultivated crops should be grown only occasionally, and the maximum number of conservation practices should be used. Areas where conservation practices cannot be applied are better suited to deep-rooted legumes than to cultivated crops. Minimizing tillage, growing cover crops, incorporating crop residue into the soil, tilling across the slope, stripcropping, and including sod crops in the cropping system help to maintain good tilth, increase the content of organic matter, and control erosion. Because of the slope, operating farm machinery is difficult and hazardous on this soil. Droughtiness is a limitation in some years.

This soil is better suited to hay and pasture than to cultivated crops. Overgrazing restricts plant growth and can deplete the stand of desirable pasture plants, especially in dry years. Erosion is a hazard in overgrazed areas. Using proper stocking rates, rotating livestock grazing, and controlling weeds and brush by mowing annually are good management practices. Because the soil is naturally acid, applications of lime are needed to improve the growth of most pasture plants.

The potential productivity of this soil for northern red oak is moderately high. The hazard of off-road or off-trail erosion is moderate and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building logging roads and skid trails on the contour helps control erosion and minimizes gullying along the trails.

The depth to bedrock and the slope are the main limitations if this soil is used as a site for dwellings with basements. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary. Installing drains around footings helps to remove any lateral seepage through fractures in the bedrock. Extensive land modification and leveling may be necessary to overcome the slope limitation.

Slope, frost action, and the depth to bedrock are the main limitations if this soil is used as a site for local roads and streets. Extensive land modification and leveling may be necessary to overcome the slope limitation. Adding coarse textured subgrade or base material reduces the potential for frost action. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary.

The depth to bedrock and the slope are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications may be necessary to overcome the moderately steep slope. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary. Care is needed to prevent the contamination of ground water resulting from seepage through the jointed and fractured bedrock. The absorption field should be installed in suitable fill material.

Erosion is a serious hazard on construction sites. Minimizing the removal of vegetation, mulching, and quickly establishing plant cover, helps to control erosion and sedimentation.

The capability subclass is 4e.

# 496E—Gilpin channery silt loam, 25 to 35 percent slopes

This soil is steep, moderately deep, and well drained. It is on uniformly sloping valley sides that receive runoff from the higher adjacent soils. It is in areas where the topography is influenced by the underlying bedrock. Shale, siltstone and sandstone bedrock is at a depth of 20 to 40 inches. Individual areas are long and narrow, and range from 10 to 50 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 4 inches, very dark grayish brown channery silt loam with 15 percent channers

#### Subsoil<sup>,</sup>

4 to 16 inches, yellowish brown friable channery silt loam with 30 percent channers 16 to 26 inches, yellowish brown firm channery silty clay loam with 30 percent channers

# Substratum:

26 to 35 inches, strong brown and grayish brown firm very channery silt loam and silty clay loam with 40 percent channers

35 inches, thinly bedded siltstone and sandstone bedrock

Included in mapping are areas of moderately well drained soils, and small areas of somewhat poorly drained Portville soils along drainageways and in seepage spots. Small areas of Rayne soils, which are very deep to bedrock, are also included. Some areas of well drained Hartleton soils, which are deep to bedrock and contain more rock fragments in the subsoil, are also included. In some areas the bedrock may be within 20 inches of the surface. Included areas make up about 10 to 20 percent of the unit.

## Soil properties—

Permeability: Moderate throughout the profile

Available water capacity: Low or moderate

Soil reaction: Extremely acid or strongly acid throughout the profile

Water table: At a depth of more than 6 feet

Flooding hazard: None

Depth to bedrock: 20 to 40 inches

Most areas are used as woodland. Some areas are used for hay or pasture. This soil is not suited to cultivated crops or hay because of the slope and very severe hazard of erosion. Operating farm equipment is very difficult because of the steep slope. A plant cover that controls runoff and erosion is essential.

This soil is poorly suited for pasture. A good plant cover needs to be maintained. Prevention of overgrazing helps protect the soil from erosion and gullying. Reseeding pastures is difficult because of the slope.

The potential productivity of this soil for northern red oak is moderately high. The hazard of off-road or off-trail erosion is moderate and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building logging roads and skid trails on the contour helps control erosion and minimizes gullying along the trails.

The depth to bedrock and the slope are the main limitations if this soil is used as a site for dwellings with basements. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary. Installing drains around footings helps to remove any lateral seepage through fractures in the bedrock. Extensive land modification and leveling is necessary to overcome the slope limitation.

Slope, frost action, and the depth to bedrock are the main limitations if this soil is used as a site for local roads and streets. Extensive land modification and leveling may be necessary to overcome the slope limitation. Adding coarse textured subgrade or base material reduces the potential for frost action. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary.

The depth to bedrock and the slope are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications may be necessary to overcome the steep slope. The bedrock generally can be ripped with a backhoe. In some areas, hard bedrock can make excavation difficult and costly, and blasting may be necessary. Care is needed to prevent the contamination of ground water resulting from seepage through the jointed and fractured bedrock. The absorption field should be installed in suitable fill material.

Erosion is a serious hazard on construction sites. Minimal removal of vegetation, mulching, and quickly establishing plant cover help to control erosion and sedimentation. In most areas the native plant cover should not be removed.

The capability subclass is 6e.

# 496F—Gilpin channery silt loam, 35 to 50 percent slopes

This soil is very steep, moderately deep, and well drained. It is on uniformly sloping valley sides that receive runoff from the higher adjacent soils. It is in areas where the topography is influenced by the underlying bedrock. Shale, siltstone and sandstone bedrock is at a depth of 20 to 40 inches. Individual areas are long and narrow, and range from 10 to 50 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 4 inches, very dark grayish brown channery silt loam with 15 percent channers

#### Subsoil:

4 to 16 inches, yellowish brown friable channery silt loam with 30 percent channers 16 to 26 inches, yellowish brown firm channery silty clay loam with 30 percent channers

#### Substratum:

26 to 35 inches, strong brown and grayish brown firm very channery silt loam and silty clay loam with 40 percent channers

35 inches, thinly bedded siltstone and sandstone bedrock

Included in mapping are areas of moderately well drained soils, and small areas of somewhat poorly drained Portville soils along drainageways and in seepage spots. Small areas of Rayne soils, which are very deep to bedrock, are also included. Some areas of well drained Hartleton soils, which are deep to bedrock and contain more rock fragments in the subsoil, are also included. In some areas the bedrock may be within 20 inches of the surface. Included areas make up about 10 to 20 percent of the unit.

## Soil properties—

Permeability: Moderate throughout the profile Available water capacity: Low or moderate

Soil reaction: Extremely acid to strongly acid throughout the profile

Water table: At a depth of more than 6 feet

Flooding hazard: None

Depth to bedrock: 20 to 40 inches

Most areas are wooded and provide wildlife habitat.

This soil is not suited to cultivated crops, hay or pasture. The very steep slope and the very severe hazard of erosion are the main management concerns. The soil is too steep for the safe operation of farm machinery. A plant cover that controls runoff and erosion is essential.

The potential productivity of this soil for northern red oak is moderately high. The hazard of off-road or off-trail erosion and the hazard of erosion on roads and trails are severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building logging roads and skid trails on the contour helps control erosion and minimizes gullying along the trails.

Slope severely limits construction. It is the main limitation for dwellings with basements and local roads and streets. Extensive land modification may be necessary to overcome the slope. Alternative sites should be considered for these uses.

The slope and depth to bedrock are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are necessary to overcome these limitations. Alternative sites should be considered for this use.

Erosion is a very severe hazard on construction sites. Minimizing the removal of vegetation, mulching, and quickly establishing plant cover, helps to control erosion and sedimentation. In most areas the native plant cover should not be removed.

The capability subclass is 7e.

# 497D—Rayne channery silt loam, 15 to 25 percent slopes

This soil is moderately steep, very deep, and well drained. It is on uniformly sloping valley sides that receive runoff from higher adjacent soils. Individual areas are oblong or rectangular, and range from 15 to 75 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

### Surface layer:

0 to 4 inches, very dark grayish brown channery silt loam with 20 percent channers

#### Subsoil:

4 to 16 inches, yellowish brown friable channery silt loam, with 20 percent channers
16 to 31 inches, brown friable channery silt loam, with 20 percent channers
31 to 38 inches, dark yellowish brown firm channery silt loam, with 25 percent channers

#### Substratum:

38 to 72 inches, light olive brown firm channery silt loam, with 25 percent channers

Included in mapping are small areas of soils that are similar to Rayne, but are moderately well drained or somewhat poorly drained, and occur along drainageways and in seepage spots. Small areas of Gilpin soils, which have bedrock within a depth of 40 inches, are also included. Also included are small areas of Hartleton soils which contain more rock fragments in the subsoil, and areas of Rayne soils that have a silt loam surface layer. Included areas make up about 15 to 25 percent of this unit.

# Soil properties—

Permeability: Moderate throughout the profile Available water capacity: Moderate or high

Soil reaction: Very strongly acid or strongly acid throughout the profile

Water table: At a depth of more than 6.0 feet

Flooding hazard: None

Depth to bedrock: More than 60 inches

Most of the acreage is in woodland, or is idle land that is reverting to brush. A few areas are used for hay or pasture. A small acreage is used for row crops.

This soil is poorly suited to cultivated crops because of the severe hazard of erosion and the slope limitation. Operating farm equipment is difficult and hazardous because of the moderately steep slope. Erosion is a serious hazard in cultivated areas. Cultivated crops should be grown only occasionally, and the maximum number of conservation practices should be used. Areas where conservation practices cannot be applied are better suited to deep-rooted legumes than to cultivated crops. Minimizing tillage, growing cover crops, incorporating crop residue into the soil, tilling across the slope, stripcropping, and including sod crops in the cropping system help to maintain good tilth, increase the content of organic matter, and control erosion. Sufficient applications of lime and fertilizer are needed to maintain crop growth.

This soil is moderately well suited to hay and pasture. It is especially suitable for grazing early in the growing season. Overgrazing can restrict plant growth and increase the hazard of erosion. Deep-rooted legumes grow well, but applications of lime and fertilizer are required to maintain the quality of the stands and to ensure good plant growth. If plowing is necessary to establish a plant cover, plowing across the slope and leaving strips of sod help to control runoff. Using proper stocking rates, rotating livestock grazing, and controlling weeds and brush by mowing annually are the main management concerns.

The potential productivity of this soil for northern red oak is moderately high. The hazard of off-road or off-trail erosion is moderate and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building logging roads and skid trails on the contour helps control erosion and minimizes gullying along the trails.

The slope is the main limitation if this soil is used as a site for dwellings with basements and for local roads and streets. Extensive land modification and grading may be needed to overcome the slope. Frost action is an additional limitation if this

soil is used as a site for local roads and streets. Installing roadside drainage systems and adding coarse textured subgrade or base material reduce the potential for frost action.

The slope and restricted permeability are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modification are needed if onsite waste disposal systems are installed. Extensive land modification is needed to overcome the moderately steep slope. Installing a subsurface drainage system upslope from the absorption field, and adding permeable fill material help to overcome the restricted permeability.

Erosion is a serious hazard on construction sites. Minimizing the removal of vegetation, mulching, and quickly establishing plant cover, helps to control erosion and sedimentation.

The capability subclass is 4e.

# 497E—Rayne channery silt loam, 25 to 35 percent slopes

This soil is steep, very deep, and well drained. It is on uniformly sloping valley sides that receive runoff from higher adjacent soils. Individual areas are oblong or occur as narrow strips on the side slopes. They range from 10 to several hundred acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 4 inches, very dark grayish brown channery silt loam with 20 percent channers

#### Subsoil:

4 to 16 inches, yellowish brown friable channery silt loam, with 20 percent channers
16 to 31 inches, brown friable channery silt loam, with 20 percent channers
31 to 38 inches, dark yellowish brown firm channery silt loam, with 25 percent channers

#### Substratum:

38 to 72 inches, light olive brown firm channery silt loam, with 25 percent channers

Included in mapping are small areas of soils that are similar to Rayne, but are moderately well drained or somewhat poorly drained, and occur along drainageways and in seepage spots. Small areas of Gilpin soils, which have bedrock within a depth of 40 inches, are also included. Also included are small areas of Hartleton soils which contain more rock fragments in the subsoil, and areas of Rayne soils that have a silt loam surface layer. Included soils make up about 15 to 25 percent of this unit.

### Soil properties—

Permeability: Moderate throughout the profile Available water capacity: Moderate or high

Soil reaction: Very strongly acid or strongly acid throughout the profile

Water table: At a depth of more than 6.0 feet

Flooding hazard: None

Depth to bedrock: More than 60 inches

Most areas are wooded and provide habitat for wildlife. Some of the acreage is idle land or is used as pasture.

This soil is not suited to cultivated crops or hay because of the slope and the very severe hazard of erosion. Operating farm equipment is very difficult because of the steep slope. A plant cover that controls runoff and erosion is essential.

The suitability of this soil for pasture is limited. A good plant cover is needed. Prevention of overgrazing helps to protect the soil from erosion and gullying.

Reseeding pastures is difficult because of the steep slope. Sufficient applications of lime and fertilizer are needed to improve native pastures.

The potential productivity of this soil for northern red oak is moderately high. The hazard of off-road or off-trail erosion is moderate and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building logging roads and skid trails on the contour helps control erosion and minimizes gullying along the trails.

The slope is the main limitation if this soil is used as a site for dwellings with basements and for local roads and streets. Extensive land modification and grading may be needed to overcome the slope. Frost action is an additional limitation if this soil is used as a site for local roads and streets. Installing roadside drainage systems and adding coarse textured subgrade or base material, reduce the potential for frost action.

The slope and restricted permeability are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste systems are installed. Extensive land modification is needed to overcome the steep slope.

Erosion is a serious hazard on construction sites. Minimizing the removal of vegetation, mulching, and quickly establishing plant cover, helps to control erosion and sedimentation. In most areas the native plant cover should not be removed.

The capability subclass is 6e.

# 497F—Rayne channery silt loam, 35 to 50 percent slopes

This soil is very steep, very deep, and well drained. It is on hillsides and valley sides that receive runoff from the higher adjacent soils. Many areas on the valley sides are deeply dissected by V-shaped gullies. Individual areas are elongated or occur as narrow strips on the side slopes. They commonly are 20 to 75 acres, in size but range from 10 to several hundred acres.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 4 inches, very dark grayish brown channery silt loam with 20 percent channers

### Subsoil:

4 to 16 inches, yellowish brown friable channery silt loam, with 20 percent channers 16 to 31 inches, brown friable channery silt loam, with 20 percent channers 31 to 38 inches, dark yellowish brown firm channery silt loam, with 25 percent channers

#### Substratum:

38 to 72 inches, light olive brown firm channery silt loam, with 25 percent channers

Included in mapping are small areas of soils that are similar to Rayne, but are moderately well drained or somewhat poorly drained, and occur along drainageways and in seepage spots. Small areas of Gilpin soils, which have bedrock within a depth of 40 inches, are also included. Also included are small areas of Hartleton soils which contain more rock fragments in the subsoil, and areas of Rayne soils that have a silt loam surface layer. Included soils make up about 15 to 25 percent of this unit.

## Soil properties—

Permeability: Moderate throughout the profile Available water capacity: Moderate or high

Soil reaction: Very strongly acid or strongly acid throughout the profile

Water table: At a depth of more than 6.0 feet

Flooding hazard: None

Depth to bedrock: More than 60 inches

Most areas are wooded and provide wildlife habitat.

This soil is not suited to cultivated crops, hay or pasture. The very steep slope and the very severe hazard of erosion are the main management concerns. The soil is too steep for the safe operation of farm machinery. A plant cover that controls runoff and erosion is essential.

The potential productivity of this soil for northern red oak is moderately high. The hazard of off-road or off-trail erosion and the hazard of erosion on roads and trails are severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building logging roads and skid trails on the contour helps control erosion and minimizes gullying along the trails.

The slope is the main limitation if this soil is used as a site for dwellings with basements and for local roads and streets. Extensive land modification and grading may be needed to overcome the very steep slope. Frost action is an additional limitation if this soil is used as a site for local roads and streets. Installing roadside drainage systems and adding coarse textured subgrade or base material, reduce the potential for frost action. Alternative sites should be considered for these uses.

The slope and restricted permeability are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste systems are installed. Extensive land modification is needed to overcome the steep slope. Alternative sites should be considered for this use.

Erosion is a very serious hazard on construction sites. Minimizing the removal of vegetation, mulching, and quickly establishing plant cover, help to control erosion and sedimentation. In most areas the native plant cover should not be removed.

The capability subclass is 7e.

# 498E—Rayne channery silt loam, 25 to 35 percent slopes, extremely bouldery

This soil is steep, very deep, and well drained. It occurs on uniformly sloping valley sides that receive runoff from higher adjacent soils. Boulders and large stones cover 3 to 15 percent of the surface. Individual areas are oblong or rectangular, and range from 15 to 95 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:

0 to 4 inches, very dark grayish brown channery silt loam with 20 percent channers

#### Subsoil:

4 to 16 inches, yellowish brown friable channery silt loam, with 20 percent channers
16 to 31 inches, brown friable channery silt loam, with 20 percent channers
31 to 38 inches, dark yellowish brown firm channery silt loam, with 25 percent channers

#### Substratum:

38 to 72 inches, light olive brown firm channery silt loam, with 25 percent channers

Included in mapping are small areas of soils that are similar to Rayne, but are moderately well drained or somewhat poorly drained, and occur along drainageways and in seepage spots. Small areas of Gilpin soils, which have bedrock within a depth of 40 inches, are also included. Also included are small areas of Hartleton soils which contain more rock fragments in the subsoil, and areas of Rayne soils that have a silt

loam surface layer. Areas which are almost covered with boulders are present in spots, especially along drainageways. Included soils make up about 15 to 25 percent of this unit.

## Soil properties—

Permeability: Moderate throughout the profile Available water capacity: Moderate or high

Soil reaction: Very strongly acid or strongly acid throughout the profile

Water table: At a depth of more than 6.0 feet

Flooding hazard: None

Depth to bedrock: More than 60 inches

Most areas are used as woodland and wildlife habitat.

This soil is not suited to cultivated crops or hay due to boulders on the surface, steep slope and the very severe hazard of erosion. A plant cover that controls runoff and erosion is essential.

This soil is poorly suited to pasture. Some areas may support unimproved pasture. The numerous boulders on the surface and the steep slope hinder reseeding. Overgrazing is the main concern in managing pasture because it can damage native pasture plants. A good plant cover is needed. Prevention of overgrazing helps to protect the soil from erosion and gullying.

The potential productivity of this soil for northern red oak is moderately high. The hazard of off-road or off-trail erosion is moderate and the hazard of erosion on roads and trails is severe. The potential for seedling mortality is low. Planting seedlings early in spring, when the soil is moist, helps to ensure their survival. Building logging roads and skid trails on the contour helps control erosion and minimizes gullying along the trails. Excessive surface boulders limit the use of logging equipment.

Slope and large boulders are the main limitations if this soil is used as a site for dwellings with basements. Extensive land modification and grading may be needed to overcome the slope. Designing the dwellings so that they conform to the natural slope of the land reduces the amount of grading required. Boulders on the soil surface can make excavation difficult and costly.

Slope, large stones and boulders on the surface and frost action are the main limitations if this soil is used as a site for local roads and streets. Careful planning and layout of roads and streets will minimize excavation, which can be difficult and costly, and help to overcome the limitations of boulders and slope. Adding coarse textured subgrade or base material, and installing roadside drainage systems reduce the potential for frost action.

The slope and surface boulders are limitations if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Boulders on the surface can make excavation difficult and costly. Extensive land modification is needed to overcome the steep slope. Alternative sites should be considered for this use.

Erosion is a serious hazard on construction sites. Minimizing the removal of vegetation, mulching, and quickly establishing plant cover, help to control erosion and sedimentation. In most areas the native plant cover should not be removed.

The capability subclass is 7s.

## 800—Holderton silt loam

This soil is nearly level, very deep and somewhat poorly drained. It is in low areas on flood plains along major streams in the southern part of the county. Individual areas generally are oblong in shape and commonly are parallel to the adjacent

streams. They range from 5 to 40 acres in size. Slopes commonly are smooth and ranges from 0 to 3 percent.

The typical sequence, depth, and composition of the layers of this soil are as follow—

Surface layer:

0 to 6 inches, very dark grayish brown silt loam

Subsoil:

6 to 14 inches, brown friable fine sandy loam

14 to 28 inches, grayish brown very friable fine sandy loam, with brown iron accumulations, and 5 percent gravel

28 to 36 inches, grayish brown friable loam, with strong brown and yellowish brown iron accumulations, and 5 percent gravel

Substratum:

36 to 52 inches, dark grayish brown very friable gravelly loam, with yellowish brown and strong brown iron accumulations, and 25 percent gravel

52 to 72 inches, dark grayish brown loose very gravelly sandy loam with 35 percent gravel

Included in mapping are small areas of the poorly drained Wyalusing soils in slight depressions and along older meander scars, the moderately well drained Middlebury soils in the slightly higher positions on the landscapes, and soils that have a gravelly surface layer. Included areas make up about 15 to 25 percent of this unit.

## Soil properties—

Permeability: Moderate in the surface layer and subsoil, and moderate or moderately rapid in the substratum

Available water capacity: Moderate or high

Soil reaction: Moderately acid to neutral in the surface layer and subsoil, slightly acid to slightly alkaline in the substratum

Water table: At a depth of 0.5 foot to 1.5 feet from November through May

Flooding hazard: Occasional, brief Depth to bedrock: More than 6 feet

Most areas are used for row crops in support of dairy farming. Some of the acreage is in woodland, or idle land. Where drained, this soil meets the requirements for prime farmland.

This soil is moderately well suited to cultivated crops. Flooding can delay planting or damage crops in some years. The seasonal high water table can delay tillage and planting, and can make harvesting difficult, especially in low areas. The wetness can be reduced by installing subsurface drains in areas where adequate outlets are available. If a drainage system is installed, the soil is suited to the crops commonly grown in the county. It has a stone-free surface layer and can be easily tilled. Minimizing tillage, growing cover crops, incorporating crop residue into the soil, and growing occasional sod crops help to maintain tilth and the content of organic matter. Measures that protect streambanks are needed in some areas to prevent lateral erosion in the fields.

Hay and pasture crops grow well on this soil. Overgrazing and grazing when the soil is wet can cause surface compaction, restrict plant growth, and damage pasture plants. Using proper stocking rates, rotating grazing, controlling weeds and brush, and deferring grazing early in spring are the main management concerns.

The potential productivity of this soil for sugar maple is moderate. The hazard of off-road or off-trail erosion and the hazard of erosion on roads and trails are slight. The potential for seedling mortality is high. The seasonal wetness increases seedling mortality. Tree species that can withstand the seasonal wetness grow best.

The hazard of flooding and the depth to saturated zone are the main management concerns if this soil is used as a site for dwellings with basements. Fill material is needed to elevate the dwellings above the high water level during periods of flooding. Building on fill material, installing drains around footings, and sealing foundations and basement walls help to prevent excessive wetness in the basements. Alternative sites, out of the flood plain, should be considered for this use.

The hazard of flooding, depth to saturated zone, and frost action are the main management concerns if this soil is used as a site for local roads and streets. Adding coarse textured subgrade or base material reduces the potential for frost action. Building on raised fill material reduces the hazard of flooding and helps to overcome the wetness.

The hazard of flooding and the depth to saturated zone are management concerns if this soil is used as a site for septic tank absorption fields. Extensive engineering and design modifications are needed if onsite waste disposal systems are installed. Building on raised fill material helps to overcome the seasonal wetness and reduces the hazard of flooding. Alternative sites, out of the flood plain, should be considered for this use.

The capability subclass is 3w.

## PG—Pits, gravel

This unit consists of areas from which sand and gravel have been removed. The sand and gravel are often still being excavated in many pits. The sides of the pits generally are steep, and the floor generally is level. Scattered piles of stones and boulders, and sloughed material, commonly are on the floor. Small pools of water are common in low areas in some of the pits, particularly in spring. The shape of excavated areas commonly are circular. They range from 5 to 30 acres in size.

Included in mapping are small areas of the very poorly drained Halsey soils in slight depressions. Also included are the well drained Valois soils in areas where the gravel pits adjoins glacial till; well drained Chenango soils in areas where the gravel pits adjoins gravelly outwash; and Udorthents where the soils exhibit little or no evidence of profile development. Included areas make up about 10 to 20 percent of this unit.

These pits generally do not support vegetation, but some of the older pits support scattered bushes and grasses. Because the soil material is droughty and very low in natural fertility, the vegetation commonly is sparse and its growth is stunted. Permeability varies. It is mainly moderately rapid or rapid. The water table is at various depths.

The pits generally are not suitable for farming or woodland because the topsoil has been removed, and the coarse textured subsoil material is generally not suitable for root development. The potential for wildlife habitat commonly is poor, although some small animals and birds may use the pits for shelter and refuge. Onsite investigation is needed to determine the potential for any proposed use, and the limitations affecting that use.

No capability subclass is assigned.

#### **Ur—Urban land**

This map unit consists of nearly level to strongly sloping areas in which 85 percent or more of the soil surface is covered with asphalt, concrete, or other impervious material. It includes parking lots, shopping and business centers, and industrial parks in the city of Olean. Individual map units generally range from 20 to more than 200 acres in size.

Included in mapping are small areas of soil that have not been altered or are not under an impervious cover. These areas are mostly lawns or other landscaped areas. Also included are some areas where several feet of fill have been placed on flood plains. The included soils consist of the well drained Chenango and Allard soils; moderately well drained Olean soils; and Udorthents. Included areas make up about 10 to 20 percent of this unit.

It is not practical to examine and identify the soils, Urban land. Careful onsite investigation is necessary to determine the suitability of abandoned areas for any proposed use. Some abandoned areas are suitable for asphalt-covered playgrounds or for other recreation uses requiring a hard, impervious surface.

No capability subclass is assigned.

#### W-Water

This map unit consists of areas of permanent surface water. It includes lakes, ponds, and perennial rivers and streams that were cartographically large enough to delineate at the scale of mapping.

## **Prime Farmland**

Prime farmland is one of several kinds of important farmlands defined by the U.S. Department of Agriculture. It is of major importance in meeting the Nation's short- and long-range needs for food and fiber. Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, should encourage and facilitate the wise use of our Nation's prime farmland.

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forestland, or other land, but it is not urban or built-up land or water areas. The soil qualities, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. It is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it either is not frequently flooded during the growing season or is protected from flooding. Slope ranges mainly from 0 to 6 percent. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

About 120,000 acres in the survey area, or 15 percent of the total acreage, meets the soil requirements for prime farmland. Scattered areas of this land are throughout the county, but most are in the major valleys and till plains that are in general soil map units 1 and 10.

About 65,000 acres, or 8 percent of the total acreage, is made up of soils that have a seasonal high water table. These soils may qualify as prime farmland if this limitation is overcome by drainage measures. They are in scattered areas throughout the county on the uplands and in the lower positions on the till plains, mainly in general soils map units 4, 8, 9, and 11. The crops grown on this land are mainly corn, small grain, and hay in the plateau region.

A recent trend in land use in some parts of the survey area has been the loss of some prime farmland to industrial and urban uses. The loss of prime farmland to other uses puts pressure on marginal lands, which generally are more erodible, droughty, and less productive and cannot be easily cultivated.

The map units in the survey area that are considered prime farmland are listed in table 5. This list does not constitute a recommendation for a particular land use. On some soils included in the list, corrective measures that overcome a hazard or limitation, such as flooding, wetness, and droughtiness, are needed. Onsite evaluation is needed to determine whether or not the hazard or limitation has been overcome by corrective measures. The extent of each listed map unit is shown in table 4. The location is shown on the detailed soil maps. The soil qualities that affect use and management are described under the heading "Detailed Soil Map Units."

# **Use and Management of the Soils**

This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help to prevent soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavioral characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as rangeland and forestland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreational facilities; for agricultural waste management; and as wildlife habitat. It can be used to identify the potentials and limitations of each soil for specific land uses, and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern in harmony with the natural soil.

Contractors can use this survey to locate sources of sand and gravel, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

## **Interpretive Ratings**

The interpretive tables in this survey rate the soils in the survey area for various uses. Many of the tables identify the limitations that affect specified uses, and indicate the severity of those limitations. The ratings in these tables are both verbal and numerical.

### Rating Class Terms

Rating classes are expressed in the tables in terms that indicate the extent to which the soils are limited by all of the soil features that affect a specified use or in terms that indicate the suitability of the soils for the use. Thus, the tables may show limitation classes or suitability classes. Terms for the limitation classes are *not limited*, *slightly limited*, *somewhat limited*, and *very limited*. The suitability ratings are expressed as *well suited*, *moderately well suited*, *poorly suited* and *unsuited*; or as *good*, *fair*, and *poor*, or as *probable* and *improbable*.

#### **Numerical Ratings**

Numerical ratings in the tables indicate the relative severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate

gradations between the point at which a soil feature has the greatest negative impact on the use, and the point at which the soil feature is not a limitation. The limitations appear in order from the most limiting to the least limiting. Thus, if more than one limitation is identified, the most severe limitation is listed first and the least severe one is listed last.

## **Crops and Pasture**

General management needed for crops and pasture is suggested in this section. The estimated yields of the main crops and pasture plants are listed, the system of land capability classification used by the Natural Resources Conservation Service is explained, and prime farmland is described.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under the heading "Detailed Soil Map Units." Specific information can be obtained from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

#### **Principles of Management**

In 1997 about 220,000 acres in Cattaraugus County were used for crops and pasture (USDA, 1997). Of this total, 96,000 acres were used for pasture and 124,000 acres for field crops, mostly hay, corn, small grain, and some vegetables.

The potential for increased crop production is excellent in some parts of the county. About 30,000 acres of potentially good cropland currently is used for pasture, and another 80,000 acres is used for woodland (U.S. Dept. of Commerce, 1997). In addition to the reserve production capacity represented by these lands, crop yields can be increased by applying the latest crop technology and appropriate soil conservation practices to all of the cropland in the county. This soil survey can facilitate the use of new technology and the application of conservation practices.

The acreage in crops and pasture has decreased rapidly in the last few decades as more and more land has been converted to urban and recreational uses. The use of this soil survey to make land use decisions that affect farming in the county is discussed in the sections "Use and Management of the Soils" and "Detailed Soil Map Units."

Some general principles of crop production in Cattaraugus County are described in the following paragraphs.

Soil erosion is a major hazard on about one-third of the cropland in Cattaraugus County, according to the 1985 New York State Erosion and Sediment Inventory (USDA, 1985). Additionally, soils along streams are subject to streambank erosion (fig. 15). This erosion presents a threat to existing housing, roads, and recreational areas in the survey area. The hazard of erosion is related to the slope, the erodibility of the soils, the amount and intensity of rainfall, and the type of plant cover.

Loss of soil through erosion results in loss of nutrients and water, formation of gullies on hillsides, deterioration of tilth, detrimental sedimentation downslope, and pollution of streams and reservoirs. Soil productivity is reduced when the surface layer is lost, and increasing amounts of the subsoil are incorporated into the plow layer. Loss of productivity is greater if the erosion occurs on the soils that have a fine-textured or moderately fine-textured subsoil, such as Collamer and Churchville soils, or on soils that have a compact subsoil that restricts rooting depth, such as Mardin and Volusia soils. Erosion also reduces productivity on soils that tend to be droughty, such as Chenango and Colonie soils, through the loss of organic matter. Soils that are moderately deep over bedrock, such as Towerville and Hornell soils, are permanently damaged by erosion.



Figure 15.—Stream bank erosion on the bluffs of the South Branch of Cattaraugus Creek, in an area of the Rhinebeck-Hudson-Niagara general soil map unit.

Erosion control provides protective cover, reduces runoff, increases water infiltration, and helps maintain soil tilth and fertility. Many tillage and conservation practices can be used to help prevent erosion. Minimum tillage, no-till, cover crops, crop residue management, and a cropping system that includes a high proportion of sod-forming crops are effective in controlling erosion. Additionally, conservation practices such as contour tillage, stripcropping, and terraces or diversions will help to control erosion on soils that have smooth, long, uniform slopes, such as the strongly sloping Busti, Volusia, Mardin and Chautauqua soils.

Most soils that have slopes of more than 3 percent require some measures to control water erosion. Soils that have a high content of silt, and do not contain rock fragments, such as Allard, Unadilla, and Collamer soils, are highly susceptible to erosion.

The effectiveness of particular combinations of conservation practices varies with different soils. Different combinations can be equally effective on the same soils. Additional information on erosion-control practices is available at the local office of the Cattaraugus County Soil and Water Conservation District or the Natural Resources Conservation Service.

Drainage is a major need on about one-half of the potential cropland in the survey area. On some wet soils, the production of crops commonly grown in the area is generally not feasible unless an extensive drainage system is installed. Draining these areas is often difficult or impractical since these soils occupy the lowest positions in the landscape. Examples of these soils are the poorly drained Canandaigua, Getzville, Lamson, and Wayland soils, and the very poorly drained Halsey soil. Moreover, most poorly drained and very poorly drained soils are hydric

soils, and have the hydrology and vegetation that qualify them as wetlands, protected by law.

Seasonal wetness delays early planting, slows seed germination and seedling growth, and harvesting of most crops on the somewhat poorly drained soils, such as Busti, Erie, Niagara, Tonawanda, and Volusia. Crops on these soils respond well to improved drainage. Yields commonly are as high on artificially drained soils as they are on naturally moderately well drained soils.

Some well drained and moderately well drained soils, such as Valois, Unadilla, Chautauqua, Langford, and Scio soils, have small included areas of wetter soils. Installing random subsurface drains in these small areas allows more uniform management of fields.

Drainage of some moderately well drained and somewhat poorly drained sloping soils, such as Mardin and Volusia soils, can best be improved with diversions or interceptor drains, that divert surface runoff coming from higher areas.

The design of a drainage system varies with the kind of soil. A combination of surface and subsurface drainage is needed in areas of somewhat poorly drained and poorly drained soils. Surface drainage can include open ditches, grassed waterways, land smoothing, and bedding. Subsurface drainage is mainly tile or plastic pipe. However, establishing drainage outlets is difficult and expensive on soils in low positions on the landscape.

Drains must be more closely spaced in slowly permeable soils than in more permeable soils. Subsurface drainage is difficult in slowly permeable soils such as Rhinebeck, Canandaigua, and Darien soils. These soils may also require surface drainage. Subsurface drainage is very effective in more permeable soils such as Red Hook, Halsey, and Lamson soils, if adequate outlets are available.

Information on installation and cost of drainage systems is available at the office of the Cattaraugus County Soil and Water Conservation District or the Natural Resources Conservation Service.

Available water capacity is important in growing crops. Some of the soils in the county have a relatively low capacity to store moisture, and tend to be droughty. These soils include sandy and gravelly soils, and soils that have a fragipan. The gravelly Chenango soils, the sandy Colonie soils, and the Mardin soils, which have a fragipan, are examples. Increasing the organic matter content and improving soil structure will help to increase the water holding capacity of the soil. Using more green manure crops, cover crops, and additions of animal manure will improve organic matter content and soil structure and increases the available water capacity of these droughty soils.

Soil tilth is the physical condition of the soil that is related to ease of tillage, seedbed preparation, seedling emergence, the infiltration of water, and root penetration. Soils that have good tilth generally have granular structure, are porous, and are easy to cultivate.

Tillage has a strong influence on soil tilth. Excessive tillage tends to reduce organic matter content and break down soil structure. Chenango and Colonie soils, which are very deep, well drained, and coarse-textured or moderately coarse-textured, can be tilled without damaging tilth. The wetter and finer textured Rhinebeck and Canandaigua soils, however, must be tilled at the proper moisture content to prevent deterioration of the natural structure. Plowing or cultivating these soils when they are wet causes puddling and results in the formation of a hard surface crust and clods as the soils dry. Cultivating the soils at the proper moisture content, including cover crops, green manure crops, and sod crops in the cropping system, returning crop residue to the soil, and adding manure help to keep the soils granular and porous.

Soil fertility is important for optimum crop production. It can be maintained by the addition of lime, fertilizer, or both. The amount needed depends on the natural content

of lime and plant nutrients, on the needs of the crop, and on the level of the desired yields.

Organic matter content is important in assessing fertility. It averages about 5 percent in the surface layer of the soils in Cattaraugus County. Poorly drained and very poorly drained soils, such as Canadice and Alden soils, are somewhat higher in organic mater content.

Nitrogen is released from the organic matter in the soil, but much of the nitrogen is in complex forms that cannot be used by plants until it has been decomposed by micro-organisms. Nitrogen fertilizer is needed to supplement the nitrogen supplied by the decomposition of the organic matter in the soil. Management practices that increase the content of organic matter, including growing green manure crops and sod crop and returning crop residue to the soil, improve the natural content of nitrogen.

Timeliness of nitrogen fertilization is important to ensure its maximum use by plants. Nitrogen can be lost through leaching in rapidly permeable soils, such as Chenango soil, or by denitrification in the wetter and less permeable soils, such as Fremont soils. The best results can be obtained by applying small amounts of nitrogen at the proper intervals. For example, the nitrogen must be applied at the time of planting and again later as a side dressing when the crop is growing.

The soils in Cattaraugus County generally have low levels of natural phosphorus. Coarse textured soils, such as Colonie and Chenango soils, tend to be very low in phosphorus. Adding appropriate amounts of phosphorus in the form of commercial fertilizer is essential for good plant growth.

Most of the soils in the county have low or medium levels of available potassium. However, soils that have a clayey subsoil, such as Rhinebeck and Canadice soils, are somewhat higher in potassium. Even on soils that have a fairly high content of potassium, adding potassium increases yields of most crops.

Lime is needed for most of the soils in the survey area to raise the reaction to a level that will ensure optimum yields of most crops. Additions of lime and fertilizer should be based on the results of soil tests. For assistance in obtaining soil tests and recommendations, farmers and others can contact the local office of the Cooperative Extension Service. Information on recent research findings and fertilizer recommendations can be found in the current edition of "Cornell Recommends for Field Crops" and "Vegetable Production Recommendations". These bulletins were prepared by the staff of the New York State College of Agriculture, Cornell University, in Ithaca, New York.

Surface stones, boulders, and rock outcrops limit the use of soils for cropland or hayland in several parts of the county. Mardin and Volusia, very stony, and Knapp Creek and Flatiron, extremely bouldery are map units that have limitations because of rock fragments, boulders or outcrops. Surface rock fragments, boulders and rock outcrops limit the use of equipment, especially tillage implements. Pasture management practices, such as fertilizing, mowing, or reseeding, are also limited. Overcoming limitations on very rocky soils is generally not practical.

#### Yields per Acre

The average yields per acre that can be expected of the principal crops under a high level of management are shown in table 6. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors. The land capability classification of map units in the survey area also is shown in table 6.

The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. Available yield data from nearby counties and results of field trials and demonstrations also are considered.

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, barnyard manure, and green manure crops; and harvesting that ensures the smallest possible loss.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in table 6 are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Natural Resources Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils for those crops.

#### **Land Capability Classification**

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for forestland, or for engineering purposes.

In the capability system, soils are generally grouped at three levels: capability class, subclass, and unit. Only class and subclass are used in this survey.

Capability classes, the broadest groups, are designated by the numbers 1 through 8. The numbers indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class 1 soils have slight limitations that restrict their use.

Class 2 soils have moderate limitations that restrict the choice of plants, or that require moderate conservation practices.

Class 3 soils have severe limitations that restrict the choice of plants, or that require special conservation practices, or both.

Class 4 soils have very severe limitations that restrict the choice of plants, or that require very careful management, or both.

Class 5 soils are subject to little or no erosion, but have other limitations, impractical to remove, that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 6 soils have severe limitations that make them generally unsuitable for cultivation, and that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 7 soils have very severe limitations that make them unsuitable for cultivation, and that restrict their use mainly to grazing, forestland, or wildlife habitat.

Class 8 soils and miscellaneous areas have limitations that preclude commercial plant production, and that restrict their use to recreational purposes, wildlife habitat, watershed, or esthetic purposes.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, e, w, s, or c, to the class numeral, for example, 2e. The letter e

shows that the main hazard is the risk of erosion unless close-growing plant cover is maintained; w shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); s shows that the soil is limited mainly because it is shallow, droughty, or stony; and c, used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

In class 1 there are no subclasses because the soils of this class have few limitations. Class 5 contains only the subclasses indicated by w, s, or c because the soils in class 5 are subject to little or no erosion. They have other limitations that restrict their use to pasture, rangeland, forestland, wildlife habitat, or recreation.

The acreage of soils in each capability class or subclass is shown in table 7. The capability classification of map units in this survey area is given in the section "Detailed Soil Map Units" and in the yields table.

## **Forest Productivity and Management**

The tables in this section can help forest owners or managers plan the use of soils for wood crops. They show the potential productivity of the soils for wood crops and rate the soils according to the limitations that affect various aspects of forest management.

### **Forest Productivity**

In table 8 (Forestland Productivity) the *potential productivity* of merchantable or common trees on a soil is expressed as a site index and as a volume number. The *site index* is the average height, in feet, that dominant and co-dominant trees of a given species attain in a specified number of years. The site index applies to fully stocked, even-aged, unmanaged stands. Commonly grown trees are those that forest managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability. More detailed information regarding site index is available in the "National Forestry Manual," which is available in local offices of the Natural Resources Conservation Service or on the Internet.

The *volume of wood fiber*, a number, is the yield likely to be produced by the most important tree species. This number, expressed as cubic feet per acre per year and calculated at the age of culmination of the mean annual increment (CMAI), indicates the amount of fiber produced in a fully stocked, even-aged, unmanaged stand.

*Trees to manage* are those that are preferred for planting, seeding, or natural regeneration, and those that remain in the stand after thinning or partial harvest.

#### Forest Management

In table 9 (Hazard of Erosion and Suitability for Roads on Forestland) and table 10 (Forestland Planting), interpretive ratings are given for various aspects of forest management. The ratings are both verbal and numerical.

Some rating class terms indicate the degree to which the soils are suited to a specified forest management practice. *Well suited* indicates that the soil has features that are favorable for the specified practice, and has no limitations. Good performance can be expected, and little or no maintenance is needed. *Moderately well suited* indicates that the soil has features that are moderately favorable for the specified practice. One or more soil properties are less than desirable, and fair performance can be expected. Some maintenance is needed. *Poorly suited* indicates that the soil has one or more properties that are unfavorable for the specified practice. Overcoming the unfavorable properties requires special design, extra maintenance, and costly alteration. *Unsuited* indicates that the expected performance of the soil is

unacceptable for the specified practice or that extreme measures are needed to overcome the undesirable soil properties.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the specified forest management practice (1.00) and the point at which the soil feature is not a limitation (0.00).

The paragraphs that follow indicate the soil properties considered in rating the soils for forest management practices. More detailed information about the criteria used in the ratings is available in the "National Forestry Manual," which is available in local offices of the Natural Resource conservation Service.

Ratings in the column *Hazard of off-road or off-trail erosion*, are based on slope and on soil erodibility factor K. The soil loss is caused by sheet or rill erosion in off-road or off-trail areas where 50 to 75 percent of the surface has been exposed by logging, grazing, mining, or other kinds of disturbance. The hazard is described as *slight, moderate*, *severe*, or *very severe*. A rating of *slight* indicates that erosion is unlikely under ordinary climatic conditions; *moderate* indicates that some erosion is likely and that erosion-control measures may be needed; *severe* indicates that erosion is very likely and that erosion-control measures, including revegetation of bare areas, are advised; and *very severe* indicates that significant erosion is expected, loss of soil productivity and off-site damage are likely, and erosion-control measures are costly and generally impractical.

Ratings in the column hazard of erosion on roads and trails are based on the soil erodibility factor K, slope, and content of rock fragments. The ratings apply to unsurfaced roads and trails. The hazard is described as slight, moderate, or severe. A rating of slight indicates that little or no erosion is likely; moderate indicates that some erosion is likely, that the roads or trails may require occasional maintenance; and that simple erosion-control measures are needed; and severe indicates that significant erosion is expected, that the roads or trails require frequent maintenance, and that costly erosion-control measures are needed.

Ratings in the column *suitability for roads (natural surface*, are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, ponding, flooding, and the hazard of soil slippage. The ratings indicate the suitability for using the natural surface of the soil for roads. The soils are described as well suited, moderately well suited, or poorly suited to this use.

Ratings in the columns *suitability for hand planting* and *suitability for mechanical planting* are based on slope, depth to a restrictive layer, content of sand, plasticity index, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, moderately well suited, poorly suited, or unsuited to these methods of planting. It is assumed that necessary site preparation is completed before seedlings are planted.

Ratings in the column *potential for seedling mortality* are based on flooding, ponding, depth to a water table, content of lime, reaction, salinity, available water capacity, soil moisture regime, soil temperature regime, aspect, and slope. The soils are described as having a low, moderate, or high potential for seedling mortality.

#### Recreation

The soils of the survey area are rated in table 11 (Camp Areas, Picnic Areas, and Playgrounds) and table 12 (Paths, Trails, and Golf Fairways) according to limitations that affect their suitability for recreation. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil

features that affect the recreational uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Slightly limited* indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The ratings in the tables are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewer lines. The capacity of the soil to absorb septic tank effluent, and the ability of the soil to support vegetation also are important. Soils that are subject to flooding are limited for recreational uses by the duration and intensity of flooding and the season when flooding occurs. In planning recreational facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

The information in table 11 (Camp Areas, Picnic Areas, and Playgrounds) and table 12 (Paths, Trails, and Golf Fairways) can be supplemented by other information in this survey, for example, interpretations for building site development, construction materials, sanitary facilities, and water management.

Camp areas require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The ratings are based on the soil properties that affect the ease of developing camp areas and the performance of the areas after development. Slope, stoniness, and depth to bedrock are the main concerns affecting the development of camp areas.

The soil properties that affect the performance of the areas after development are those that influence trafficability and promote the growth of vegetation, especially in heavily used areas. For good trafficability, the surface of camp areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or dense material, permeability, and toxic substances in the soil.

*Picnic areas* are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The ratings are based on the soil properties that affect the ease of developing picnic areas, and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of picnic areas. For good trafficability, the surface of picnic areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large

stones. The soil properties that affect the growth of plants are depth to bedrock or dense material, permeability, and toxic substances in the soil.

Playgrounds require soils that are nearly level, are free of stones, and can withstand intensive foot traffic. The ratings are based on the soil properties that affect the ease of developing playgrounds and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of playgrounds. For good trafficability, the surface of the playgrounds should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or dense material, permeability, and toxic substances in the soil.

Paths and trails for hiking and horseback riding should require little or no slope modification through cutting and filling. The ratings are based on the soil properties that affect trafficability and erodibility. These properties are stoniness, depth to a water table, ponding, flooding, slope, and texture of the surface layer.

Off-road motorcycle trails require little or no site preparation. They are not covered with surfacing material or vegetation. Considerable compaction of the soil material is likely. The ratings are based on the soil properties that influence erodibility, trafficability, dustiness, and the ease of revegetation. These properties are stoniness, slope, depth to a water table, ponding, flooding, and texture of the surface layer.

Golf fairways are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or dense material; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer. The suitability of the soil for traps, tees, roughs, and greens is not considered in the ratings.

#### Wildlife Habitat

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. The kind and abundance of wildlife depend largely on the amount and distribution of food, cover, and water. Wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants.

In table 13 (Wildlife Habitat) the soils in the survey area are rated according to their potential for providing habitat for various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat; and in determining the intensity of management needed for each element of the habitat.

The potential of the soil is rated good, fair, poor, or very poor. A rating of *good* indicates that the element or kind of habitat is easily established, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected. A rating of *fair* indicates that the element or kind of habitat can be established, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of *poor* indicates that limitations are severe for the designated element or kind of habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and

must be intensive. A rating of *very poor* indicates that restrictions for the element or kind of habitat are very severe and that unsatisfactory results can be expected. Creating, improving, or maintaining habitat is impractical or impossible.

The elements of wildlife habitat are described in the following paragraphs.

Grain and seed crops are domestic grains and seed-producing herbaceous plants. Soil properties and features that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface stoniness, and flooding. Soil temperature and soil moisture also are considerations. Examples of grain and seed crops are corn, wheat, oats, and barley.

Grasses and legumes are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flooding, and slope. Soil temperature and soil moisture also are considerations. Examples of grasses and legumes are fescue, lovegrass, bromegrass, clover, and alfalfa.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flooding. Soil temperature and soil moisture also are considerations. Examples of wild herbaceous plants are bluestem, goldenrod, beggarweed and wheatgrass.

Hardwood trees and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, and foliage. Soil properties and features that affect the growth of hardwood trees and shrubs are depth of the root zone, available water capacity, and wetness. Examples of these plants are oak, poplar, cherry, sweetgum, apple, hawthorn, dogwood, hickory, blackberry, and blueberry. Examples of fruit-producing shrubs that are suitable for planting on soils rated *good* are Russian-olive, autumnolive, and crabapple.

Coniferous plants furnish browse and seeds. Soil properties and features that affect the growth of coniferous trees, shrubs, and ground cover are depth of the root zone, available water capacity, and wetness. Examples of coniferous plants are pine, spruce, fir, cedar, and juniper.

Wetland plants are annual and perennial wild herbaceous plants that grow on moist or wet sites. Submerged or floating aquatic plants are excluded. Soil properties and features affecting wetland plants are texture of the surface layer, wetness, reaction, salinity, slope, and surface stoniness. Examples of wetland plants are smartweed, wild millet, wildrice, saltgrass, cordgrass, rushes, sedges, and reeds.

Shallow water areas have an average depth of less than 5 feet. Some are naturally wet areas. Others are created by dams, levees, or other water-control structures. Soil properties and features affecting shallow water areas are depth to bedrock, wetness, surface stoniness, slope, and permeability. Examples of shallow water areas are marshes, waterfowl feeding areas, and ponds.

The habitat for various kinds of wildlife is described in the following paragraphs. Habitat for openland wildlife consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. Wildlife attracted to these areas include bobwhite quail, pheasant, meadowlark, field sparrow, cottontail, and red fox.

Habitat for woodland wildlife consists of areas of deciduous and/or coniferous plants and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include wild turkey, ruffed grouse, woodcock, thrushes, woodpeckers, squirrels, gray fox, raccoon, deer, and bear.

Habitat for wetland wildlife consists of open, marshy or swampy shallow water areas. Some of the wildlife attracted to such areas are ducks, geese, herons, shore birds, muskrat, mink, and beaver.

## **Engineering**

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. Ratings are given for building site development, sanitary facilities, construction materials, and water management. The ratings are based on observed performance of the soils and on the estimated data and test data in the "Soil Properties" section.

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil between the surface and a depth of 5 to 7 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site-specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about particle-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 to 7 feet of the surface, soil wetness, depth to a water table, ponding, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kinds of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary estimates of construction conditions; evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; plan detailed onsite investigations of soils and geology; locate potential sources of gravel, sand, earthfill, and topsoil; plan drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; and predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey, can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

#### **Construction Materials**

Table 14 (Construction Materials) and table 15 (Source of Reclaimation Material, Roadfill, and Topsoil) give information about the soils as potential sources of gravel, sand, reclamation material, roadfill, and topsoil. Normal compaction, minor processing, and other standard construction practices are assumed.

In table 14, the soils are rated as a probable or improbable source of sand and gravel. A rating of *probable* means that the source material is likely to be in or below

the soil. The numerical ratings in these columns indicate the degree of probability. The number 0.00 indicates that the soil is an improbable source. A number between 0.00 and 1.00 indicates the degree to which the soil is a probable source of sand or gravel.

Sand and gravel are natural aggregates suitable for commercial use with a minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. In table 14 (Construction Materials) only the probability of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material. The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the Unified classification of the soil), the thickness of suitable material, and the content of rock fragments. If the lowest layer of the soil contains sand or gravel, the soil is rated as a probable source regardless of thickness (fig. 16). The assumption is that the sand or gravel layer below the depth of observation exceeds the minimum thickness.

In table 15, the soils are rated *good*, *fair*, or *poor* as potential sources of reclamation material, roadfill, and topsoil. The features that limit the soils as sources of these materials are specified in the tables. The numerical ratings given after the specified features indicate the degree to which the features limit the soils as sources of reclamation material, roadfill, or topsoil. The lower the number, the greater the limitation.

Reclamation material is used in areas that have been drastically disturbed by surface mining or similar activities. When these areas are reclaimed, layers of soil material or unconsolidated geological material, or both, are replaced in a vertical sequence. The reconstructed soil favors plant growth. The ratings in the table do not apply to quarries and other mined areas that require an offsite source of



Figure 16.—Stratified glacial outwash deposit showing the variable layers of deposition. These gravelly deposits are a good source of sand and gravel.

reconstruction material. The ratings are based on the soil properties that affect erosion and stability of the surface and the productive potential of the reconstructed soil. These properties include the content of sodium, salts, and calcium carbonate; reaction; available water capacity; erodibility; texture; content of rock fragments; and content of organic matter and other features that affect fertility.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the whole soil, from the surface to a depth of about 5 feet. It is assumed that soil layers will be mixed when the soil material is excavated and spread.

The ratings are based on the amount of suitable material and on soil properties that affect the ease of excavation and the performance of the material after it is in place. The thickness of the suitable material is a major consideration. The ease of excavation is affected by large stones, depth to a water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the AASHTO classification of the soil) and linear extensibility (shrink-swell potential).

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area. The ratings are based on the soil properties that affect plant growth; the ease of excavating, loading, and spreading the material; and reclamation of the borrow area. Toxic substances, soil reaction, and the properties that are inferred from soil texture, such as available water capacity and fertility, affect plant growth. The ease of excavating, loading, and spreading is affected by rock fragments, slope, depth to a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, depth to a water table, rock fragments, depth to bedrock or dense material, and toxic material.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

#### **Building Site Development**

Soil properties influence the development of building sites, including the selection of the site, the design of the structure, construction, performance after construction, and maintenance. Table 16 (Dwellings and Small Commercial Buildings) and table 17 (Roads and Streets, Shallow Excavations, and Lawns and Landscaping) show the degree and kind of soil limitations that affect dwellings with and without basements, small commercial buildings, local roads and streets, shallow excavations, and lawns and landscaping.

The ratings in the tables are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect building site development. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Slightly limited* indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates

that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Dwellings are single-family houses of three stories or less. For dwellings without basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. For dwellings with basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of about 7 feet. The ratings for dwellings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility. Compressibility is inferred from the Unified classification. The properties that affect the ease and amount of excavation include depth to a water table, ponding, flooding, slope, depth to bedrock or dense material, hardness of bedrock or dense material, and the amount and size of rock fragments.

Small commercial buildings are structures that are less than three stories high and do not have basements. The foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. The ratings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility (which is inferred from the Unified classification). The properties that affect the ease and amount of excavation include flooding, depth to a water table, ponding, slope, depth to bedrock or dense material, hardness of bedrock or dense material, and the amount and size of rock fragments.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material; a base of gravel, crushed rock, or soil material stabilized by lime or cement; and a surface of flexible material (asphalt), rigid material (concrete), or gravel with a binder. The ratings are based on the soil properties that affect the ease of excavation and grading and the traffic-supporting capacity. The properties that affect the ease of excavation and grading are depth to bedrock or dense material, hardness of bedrock or dense material, depth to a water table, ponding, flooding, the amount of large stones, and slope. The properties that affect the traffic-supporting capacity are soil strength (as inferred from the AASHTO group index number), subsidence, linear extensibility (shrink-swell potential), the potential for frost action, depth to a water table, and ponding.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for graves, utility lines, open ditches, or other purposes. The ratings are based on the soil properties that influence the ease of digging and the resistance to sloughing. Depth to bedrock or dense material, hardness of bedrock or dense material, the amount of large stones, and dense layers influence the ease of digging, filling, and compacting. Depth to the seasonal high water table, flooding, and ponding may restrict the period when excavations can be made. Slope influences the ease of using

machinery. Soil texture, depth to the water table, and linear extensibility (shrink-swell potential) influence the resistance to sloughing.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or dense material; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer.

#### **Sanitary Facilities**

Table 18 (Sewage Disposal) and table 19 (Landfills) show the degree and kind of soil limitations that affect septic tank absorption fields, sewage lagoons, sanitary landfills, and daily cover for landfill. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. Not limited indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. Slightly limited indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. Somewhat limited indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. Very limited indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 12 and 48 inches is evaluated. The ratings are based on the soil properties that affect absorption of the effluent, construction and maintenance of the system, and public health. Permeability, depth to a water table, ponding, depth to bedrock or dense material, and flooding affect absorption of the effluent. Stones and boulders, ice, and bedrock or dense material interfere with installation. Subsidence interferes with installation and maintenance. Excessive slope may cause lateral seepage and surfacing of the effluent in downslope areas. Permeability in the bottom layer of soil is evaluated for risk of seepage.

Some soils are underlain by loose sand and gravel or fractured bedrock at a depth of less than 4 feet below the distribution lines. In these soils the absorption field may not adequately filter the effluent, particularly when the system is new. As a result, the ground water may become contaminated. Permeability in the bottom layer of soil is evaluated for risk of seepage.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water. Considered in the ratings are slope, permeability,

depth to a water table, ponding, depth to bedrock or dense material, flooding, large stones, and content of organic matter.

Soil permeability is a critical property affecting the suitability for sewage lagoons. Most porous soils eventually become sealed when they are used as sites for sewage lagoons. Until sealing occurs, however, the hazard of pollution is severe. Soils that have a permeability rate of more than 2 inches per hour are too porous for the proper functioning of sewage lagoons. In these soils, seepage of the effluent can result in contamination of the ground water. Ground-water contamination is also a hazard if fractured bedrock is within a depth of 40 inches, if the water table is high enough to raise the level of sewage in the lagoon, or if floodwater overtops the lagoon.

A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and dense material can cause construction problems, and large stones can hinder compaction of the lagoon floor. If the lagoon is to be uniformly deep throughout, the slope must be gentle enough and the soil material must be thick enough over bedrock or a dense material to make land smoothing practical.

A trench sanitary landfill is an area where solid waste is placed in successive layers in an excavated trench. The waste is spread, compacted, and covered daily with a thin layer of soil excavated at the site. When the trench is full, a final cover of soil material at least 2 feet thick is placed over the landfill. The ratings in the table are based on the soil properties that affect the risk of pollution, the ease of excavation, trafficability, and revegetation. These properties include permeability, depth to bedrock or dense material, depth to a water table, ponding, slope, flooding, texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, onsite investigation may be needed.

Hard, non-rippable bedrock, creviced bedrock, or highly permeable strata in or directly below the proposed trench bottom can affect the ease of excavation and the hazard of ground-water pollution. Slope affects construction of the trenches and the movement of surface water around the landfill. It also affects the construction and performance of roads in areas of the landfill.

Soil texture and consistence affect the ease with which the trench is dug and the ease with which the soil can be used as daily or final cover. They determine the workability of the soil when dry and when wet. Soils that are plastic and sticky when wet are difficult to excavate, grade, or compact and are difficult to place as a uniformly thick cover over a layer of refuse.

The soil material used as the final cover for a trench landfill should be suitable for plants. It should not have excess sodium or salts and should not be too acid. The surface layer generally has the best workability, the highest content of organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

In an *area sanitary landfill*, solid waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site. A final cover of soil material at least 2 feet thick is placed over the completed landfill. The ratings in the table are based on the soil properties that affect trafficability and the risk of pollution. These properties include flooding, permeability, depth to a water table, ponding, slope, and depth to bedrock or dense material.

Flooding is a serious problem because it can result in pollution in areas downstream from the landfill. If permeability is too rapid or if fractured bedrock, or the water table is close to the surface, the leachate can contaminate the water supply. Slope is a consideration because of the extra grading required to maintain roads in the steeper areas of the landfill. Also, leachate may flow along the surface of the soils in the steeper areas and cause difficult seepage problems.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste. The ratings in the table also apply to the final cover for a landfill. They are based on the soil properties that affect workability, the ease of digging, and the ease of moving and spreading the material over the refuse daily during wet and dry periods. These properties include soil texture, depth to a water table, ponding, rock fragments, slope, depth to bedrock or dense material, reaction, and content of salts, sodium, or lime.

Loamy or silty soils that are free of large stones and excess gravel are the best cover for a landfill. Clayey soils may be sticky and difficult to spread, and sandy soils are subject to wind erosion.

Slope affects the ease of excavation and ease of moving the cover material. Also, it can influence runoff, erosion, and reclamation of the borrow area.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock, dense material, or the water table to permit revegetation. The soil material used as the final cover for a landfill should be suitable for plants. It should not have excess sodium, salts, or lime and should not be too acid.

#### Water Management

Table 20 (Ponds and Embankments) gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas; embankments, dikes, and levees; and aquifer-fed excavated ponds. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. Not limited indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. Somewhat limited indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. Very limited indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.01).

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. Embankments that have zoned construction (core and shell) are not considered. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

Aquifer-fed excavated ponds are pits or dugouts that extend to a ground-water aquifer or to a depth below a permanent water table. Excluded are ponds that are fed only by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Excavated ponds are affected by depth to a permanent water table, permeability of the aquifer, and quality of the water as inferred from the salinity of the soil. Depth to bedrock and the content of large stones affect the ease of excavation.

## **Soil Properties**

Data relating to soil properties are collected during the course of the soil survey. The data and the estimates of soil and water features, listed in tables, are explained on the following pages.

Soil properties are ascertained by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine particle-size distribution, plasticity, and compaction characteristics.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help to characterize key soils.

The estimates of soil properties are shown in tables. They include engineering index properties, physical and chemical properties, and pertinent soil and water features.

#### **Engineering Index Properties**

Table 21 (Engineering Properties) gives the engineering classifications and the range of index properties for the layers of each soil in the survey area.

*Depth* to the upper and lower boundaries of each layer is indicated.

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is 15 percent or more, an appropriate modifier is added, for example: "gravelly." Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system (ASTM, 1998) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 1998).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to particle-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of particle-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest.

Rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas, and on estimates made in the field.

Liquid limit and plasticity index (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas, and on field examination.

The estimates of particle-size distribution, liquid limit, and plasticity index are generally rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is generally omitted in the table.

#### **Physical Properties**

Table 22 (Physical Properties of the Soil) shows estimates of some physical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Particle size is the effective diameter of a soil particle as measured by sedimentation, sieving, or micrometric methods. Particle sizes are expressed as classes with specific effective diameter class limits. The broad classes are sand, silt, and clay, ranging from the larger to the smaller.

Sand as a soil separate consists of mineral soil particles that are 0.05 millimeter to 2 millimeters in diameter. In the table, the estimated sand content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Silt as a soil separate consists of mineral soil particles that are 0.002 to 0.05 millimeter in diameter. In the table, the estimated silt content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In table 22, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of sand, silt, and clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

The amount and kind of clay affect the fertility and physical condition of the soil, and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other

soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at 1/3 or 1/10 bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In the table, the estimated moist bulk density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Permeability (Ksat) refers to the ability of a soil to transmit water or air. The term "permeability," as used in soil surveys, indicates saturated hydraulic conductivity (Ksat). The estimates in the table indicate the rate of water movement, in inches per hour, when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown, and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at 1/3 or 1/10 bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. Volume change is influenced by the amount and type of clay minerals in the soil.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

*Organic matter* is the plant and animal residue in the soil at various stages of decomposition. In table 22, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained by returning crop residue to the soil. Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

Erosion factors are shown in table 22 as the K factor (Kw and Kf) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter, and on soil structure and permeability. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

*Erosion factor Kw* indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

*Erosion factor Kf* indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

#### **Chemical Properties**

Table 23 (Chemical Soil Properties) shows estimates of the chemical characteristics that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils. Depth to the upper and lower boundaries of each layer is indicated.

Soil reaction is a measure of acidity or alkalinity. The pH of each soil layer is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

#### Water Features

Table 24 (Water Features) gives estimates of various water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. The months in the table indicate the portion of the year in which the feature is most likely to be a concern.

Water table refers to a saturated zone in the soil. Table 24 indicates, by month, depth to the top (upper limit) and base (lower limit) of the saturated zone in most years. Estimates of the upper and lower limits are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

Ponding is standing water in a closed depression. Unless a drainage system is installed, the water is removed only by percolation, transpiration, or evaporation. Table 24 indicates surface water depth and the duration and frequency of ponding. Duration is expressed as very brief if less than 2 days, brief if 2 to 7 days, long if 7 to 30 days, and very long if more than 30 days. Frequency is expressed as none, rare, occasional, and frequent. None means that ponding is not probable; rare that it is unlikely but possible under unusual weather conditions (the chance of ponding is nearly 0 percent to 5 percent in any year); occasional that it occurs, on the average, once or less in 2 years (the chance of ponding is 5 to 50 percent in any year); and frequent that it occurs, on the average, more than once in 2 years (the chance of ponding is more than 50 percent in any year).

Flooding is the temporary inundation of an area caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

Duration and frequency of flooding are estimated. Duration is expressed as extremely brief if 0.1 hour to 4 hours, very brief if 4 hours to 2 days, brief if 2 to 7 days, long if 7 to 30 days, and very long if more than 30 days. Frequency is expressed as none, very rare, rare, occasional, frequent, and very frequent. None means that flooding is not probable; very rare that it is very unlikely but possible under extremely unusual weather conditions (the chance of flooding is less than 1 percent in any year); rare that it is unlikely but possible under unusual weather conditions (the chance of flooding is 1 to 5 percent in any year); occasional that it occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year); frequent that it is likely to occur often under normal weather conditions (the chance of flooding is more than 50 percent in all months in any year); and very frequent that it is likely to occur very often under normal weather conditions (the chance of flooding is more than 50 percent in all months of any year).

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

#### **Soil Features**

Table 25 gives estimates of various soil features. The estimates are used in land use planning that involves engineering considerations.

A restrictive layer is a nearly continuous layer that has one or more physical, chemical, or thermal properties that significantly impede the movement of water and air through the soil or that restrict roots or otherwise provide an unfavorable root environment. Examples are bedrock, cemented layers, dense layers, and frozen layers. The table indicates the hardness and thickness of the restrictive layer, both of which significantly affect the ease of excavation. *Depth to top* is the vertical distance from the soil surface to the upper boundary of the restrictive layer.

Potential for frost action is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave), and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Temperature, texture, density, permeability, content of organic matter, and depth to the water table are the most

important factors considered in evaluating the potential for frost action. It is assumed that the soil is not insulated by vegetation or snow and is not artificially drained. Silty and highly structured, clayey soils that have a high water table in winter are the most susceptible to frost action. Well drained, very gravelly, or very sandy soils are the least susceptible. Frost heave and low soil strength during thawing cause damage to pavements and other rigid structures.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that corrodes or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel or concrete, in installations that intersect soil boundaries or soil layers, is more susceptible to corrosion than the steel or concrete in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low*, *moderate*, or *high*, is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion also is expressed as *low*, *moderate*, or *high*. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

# Relationship between Parent Material, Landscape Position, and Drainage Class of the Soils

Table 26 shows the relationship between of some of the factors that have influenced the development and morphology of the soils in Cattaraugus County. The soils are grouped according to the type of landscape positions on which they occur. These landscape positions include uplands, outwash plains, terraces, and alluvial fans; lacustrine plains and deltas; residual and colluvial; flood plains; and swamps and bogs. The soils that are on the similar landscapes are grouped according to their depth over bedrock. The soils are also grouped by texture and by morphology of the parent material in which they formed. Finally, the soils are grouped by drainage class.

Soils that have the same parent material, soil depth, and landscape position, but are in a different drainage class form a soil catena. Dunkirk, Collamer, and Niagara soils are examples of soils that form a catena in Cattaraugus County. Some soils, such as Canandaigua soils, have drainage features that place them in more that one drainage class. These soils are listed more than once in the table.

The relationship between the position of selected soils on the landscape and depth to a seasonal high water table is shown in figure 17. Areas in which the water table is closest to the surface generally are in the lowest positions on the landscape.

The information in table 26 establishes general relations among the soils in the county. It supplements the information provided in the section "Formation of the Soils." Detailed information on the morphology and characteristics of each soil is provided in the section "Taxonomic Units and Their Morphology."

#### **Engineering Properties of Geologic Deposits**

The geologic deposits that occur in Cattaraugus County include glacial till, residuum, outwash, delta deposits, beach ridge deposits, lacustrine deposits, alluvium, and organic deposits. The significance of each kind of deposit for engineering is influenced to a great extent by its mode of deposition. This, in turn, determines the texture of the material and the internal structure of the landform that

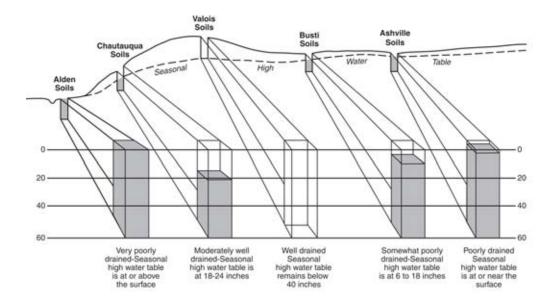


Figure 17.—A representative landscape showing the relative location of some important soils and depths to seasonal high water table.

includes the deposit. Among the influences are the position on the landscape and the depth to the water table.

In Cattaraugus County, the geologic deposits are divided into the following categories: deep till and residual deposits; shallow-to-rock deposits; stratified, coarse textured deposits; stratified, fine textured deposits; and organic deposits. These deposits are described in the following paragraphs.

Deep till and residual deposits—Deep till deposits are unstratified, highly variable mixtures of all particle sizes ranging from rock fragment to clay. This material was scoured and transported from nearby sources by glacial ice and was deposited as ground moraines, lateral moraines, or recessional moraines.

Residual deposits were formed by the weathering of bedrock in place. Bedrock is generally at a depth of more than 5 feet, but in some small areas it is closer to the surface or occurs as rock outcrops. The individual rock and mineral fragments in the soil generally reflect the types of bedrock in the immediate area.

Soils that formed in mixed, deep till deposits include Alden, Ashville, Busti, Chadakoin, Chautauqua, Darien, Erie, Fremont, Langford, Mardin, Schuyler, and Volusia soils. Valois soils formed in till deposits on moraines. Canaseraga, Churchville, and Dalton soils have a veneer of fine textured material over deep till.

Soils that formed in deep residual deposits include Ivory, Kinzua, and Onoville soils. These soils are the most dense of the unconsolidated deposits in the county. Most of the till deposits have been subjected to the compact weight of overriding ice. Most of the deep till and residual soils are nearly level or gently sloping, but some range from nearly level to very steep. The characteristics of many landscapes are such that cut and fill earthwork is needed in most construction. The soils commonly provide stable, relatively incompressible foundations for engineering works. Fill material from these deposits, when properly compacted, generally provides stable embankments. Steep cut slopes commonly are subject to surface sloughing and erosion. Alden soils are subject to ponding.

Shallow-to-rock deposits—Shallow-to-rock deposits consist of a veneer of unconsolidated sediments that are underlain by bedrock. The soil material commonly is 0.5 foot to 4.0 feet thick, and rock outcrop is common in some areas. The landforms and topography generally are controlled by the bedrock.

Soils that formed in glacial till over bedded sandstone, siltstone, and shale include Hornell, Orpark, and Towerville soils. Carrollton, Frewsburg and Mandy soils are examples of soils that formed in residual deposits over bedded sandstone, siltstone, and shale. Barcelona soils formed in fine textured material over till underlain by shale bedrock.

The main engineering concerns are those that relate to the bedrock and ground water. Other engineering considerations are similar to those described for the overlying material. Fill material is limited in quantity because of the depth to bedrock.

Stratified coarse textured deposits—Materials dominated by gravel and sand sorted by glacial meltwater into layered or stratified deposits are included in this category, as well as coarser textured material deposited by fluvial action. They occupy such geologic landforms as outwash plains and terraces, beach ridges, and the coarser portions of deltas, lacustrine plains, alluvial fans, and flood plains. The strata within these deposits may be well sorted or poorly sorted, and range in particle size from cobbles to silt. The deposits commonly are loose and porous, and have moderately rapid or rapid permeability.

Soils that formed on gravelly outwash plains and terraces, beach ridges, and alluvial fans include Castile, Chenango, Halsey, and Red Hook soils. Scio and Unadilla soils formed on silty terraces and older alluvial fans. Soils that formed in sandy areas of beaches, lake plains, and deltas are Colonie, Elnora, Lamson, and Minoa soils. Allard, Getzville, Olean, and Swormville soils have a veneer of moderately fine textured material over coarse textured material.

Coarse textured deposits generally have relatively high strength and low compressibility. Because of their loose and porous nature, most of these deposits are not highly erodible but are subject to settlement when vibrated.

These deposits of gravel and sand have many uses as construction material. Their uses depend on gradation, hardness, and plasticity. They are sources of sand and gravel for general use, and they may be used as fill material for highway embankments, in parking areas and other developments, and on construction sites where this material is needed to reduce stress on the underlying soils. They may also be used as sub base for pavements; wearing surfaces for driveways, parking lots, and some roads; material for highway shoulders; and free drainage backfill for structures and pipes. In addition, they may be used to form outside shells of dams for impounding water and as slope protection blankets to drain and help stabilize wet, cut slopes.

Stratified, fine textured deposits—Deposits in this category consist of lacustrine, fine textured sediment transported by glacial meltwater and deposited in quiet proglacial lakes.

Rhineback soils formed in deep, lake-laid deposits of silt and clay. Canadice, Canandaigua, Collamer, Dunkirk, Niagara, and Tonawanda soils formed in deep, silty deposits on lake plains. Alluvial soils include Hamlin, Holderton, Teel, Wakeland, and Wayland soils.

Because of their fine texture and high moisture content, these deposits have relatively low strength. The soils that have a high content of fine sand and silt have low compressibility but are highly erodible and are susceptible to frost action. Hamlin, Holderton, Teel, and Wakeville soils are occasionally flooded for brief periods, and Wayland soils are frequently flooded for long periods of time. Canandaigua soils are subject to ponding.

The fine textured deposits are difficult to use for engineering works, especially in areas that are flat, wet, and subject to ponding. Sites to be used for embankments and heavy structures or buildings, on all of the soils that are formed in these finer textured sediments, must be investigated for strength and settlement characteristics and for the effects of the ground water.

Organic deposits—Organic deposits consist mainly of accumulations of plant remains. In some places they include a minimal amount of mineral soil material. These deposits occur in very poorly drained depressional areas, in bogs that are covered with water during most of the year, and in freshwater marsh areas.

Carlisle and Palms soils formed in organic material, and Saprists formed in freshwater marsh areas. The soils that formed in organic deposits are entirely unsuitable for foundations for engineering work because they are wet, weak, and highly compressible. Generally, the organic material should be removed to a depth where there is suitable underlying material, and should be replaced with suitable backfill. Placing fill material over organic deposits results in long-term settlement.

## Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (USDA, 1998). Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. Table 27 shows the taxonomic classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Twelve soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Alfisol.

SUBORDER. Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth, or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Udalf (*Ud*, meaning humid, plus *alf*, from Alfisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; type of saturation; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Hapludalfs (*Hapl*, meaning minimal horizonation, plus *udalf*, the suborder of the Alfisols that has a udic moisture regime).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic subgroup is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other taxonomic class. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that typifies the great group. An example is Typic Hapludalfs.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle size, mineral content, soil temperature regime, soil depth, and reaction. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is fine-loamy, mixed, nonacid, mesic Typic Hapludalfs.

SERIES. The series consists of soils within a family that have horizons similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile.

## **Soil Series and Their Morphology**

In this section, each soil series recognized in the survey area is described. Characteristics of the soil and the material in which it formed are identified for each series. A pedon, a small three-dimensional area of soil that is typical of the series in the survey area, is described. The detailed description of each soil horizon follows

standards in the "Soil Survey Manual" (USDA, 1993). Many of the technical terms used in the descriptions are defined in "Soil Taxonomy Second Edition" (USDA, 1999) and in "Keys to Soil Taxonomy Eighth Edition" (USDA, 1998). Unless otherwise indicated, colors in the descriptions are for moist soil. Following the pedon description is the range of important characteristics of the soils in the series.

The map units of each taxonomic unit are described in the section "Detailed Soil Map Units."

#### Alden Series

The Alden series consists of very deep, very poorly drained, nearly level soils on till plains. These soils formed in silty local colluvium and in the underlying glacial till derived from siltstone, shale and smaller amounts of sandstone. Slope ranges from 0 to 3 percent.

Alden soils are associated with the moderately well drained Schuyler and Chautauqua soils, the somewhat poorly drained Fremont and Busti soils, the poorly drained Ashville soils, and the very poorly drained Halsey and Canandaigua soils. Alden soils are in the lowest positions on the landscape, and therefore receive a considerable amount of run-off from the adjacent soils. Ashville soils are at the edge of some areas of the Alden soils. Schuyler and Fremont soils have textures similar to those of Alden soils but are better drained. Alden soils have a higher content of clay than the Chautauqua and Busti soils. They are finer textured than the Halsey soils and are not as silty as the Canandaigua soils.

Typical pedon of Alden mucky silt loam; in the town of Ellicottville; adjacent to C&O railroad tracks, 0.5 miles south of Kruse Road:

- A—0 to 6 inches; black (10YR 2/1) mucky silt loam, dark gray (10YR 4/1) dry; few dark reddish brown (5YR 3/2) root mottles; moderate medium granular structure; very friable; many fine roots; 2 percent rock fragments; slightly acid; clear wavy boundary.
- Bg1—6 to 16 inches; gray (10YR 5/1) silt loam; moderate medium subangular blocky structure; friable; common fine roots; few fine distinct yellowish brown (10YR 5/6) masses of iron accumulation; 2 percent rock fragments; slightly acid; clear smooth boundary.
- Bg2—16 to 25 inches; gray (10YR 5/1) silty clay loam; weak medium subangular blocky structure; friable, common fine distinct yellowish brown (10YR 5/4) masses of iron accumulation; 2 percent rock fragments; slightly acid; clear wavy boundary.
- Cg1—25 to 36 inches; gray (10YR 5/1) silty clay loam; weak thin plate like divisions; friable; common medium distinct brown (7.5YR 4/4) masses of iron accumulation; 5 percent rock fragments; slightly acid; abrupt smooth boundary.
- Cg2—36 to 49 inches; gray (10YR 5/1) loam; weak thin plate like divisions; friable; few fine distinct brown (7.5YR 4/4) masses of iron accumulation; 10 percent rock fragments; neutral; abrupt wavy boundary.
- 2C—49 to 72 inches; light brownish gray (10YR 6/2) gravelly fine sandy loam; massive; friable; few fine faint gray (5Y 5/1)iron depletions; 20 percent rock fragments; neutral.

The thickness of the solum ranges from 24 to 36 inches. The depth to bedrock is more than 60 inches. Free carbonates, if they occur, are at depths greater than 40 inches. The content of rock fragments ranges, by volume, from 0 to 15 percent in the solum, and from 5 to 35 percent in the substratum. Reaction ranges from strongly acid to neutral in the surface layer, from moderately acid to neutral in the subsoil, and moderately acid to slightly alkaline in the substratum.

The Ap or A horizon has hue of 10YR or 2.5Y, value of 2 or 3, and chroma of 0 to 2. Texture of the fine-earth fraction is very fine sandy loam, loam, or silt loam or the

mucky analogs of these textures. Structure is weak or moderate granular. Consistence is friable or very friable. Some undisturbed areas have a 0 horizon 2 to 6 inches thick.

The Bg horizon has hue of 5YR through 5Y, or is neutral in hue. It has value of 4 through 6, and chroma of 0 through 2. Redoximorphic concentrations are few to many, and distinct or prominent. Texture of the fine-earth fraction is very fine sandy loam, silt loam, or silty clay loam. Structure is weak or moderate, fine or medium subangular blocky. Consistence is friable or firm.

The Cg or 2C horizon has hue of 5YR to 5Y, value of 3 to 6, and chroma of 0 to 3. Redoximorphic features are few to many, and faint or distinct. Texture of the fine earth fraction is fine sandy loam, loam, silt loam, silty clay loam, or gravelly analogs. It is massive or has weak plate like divisions. Consistence is friable or firm.

## **Allard Series**

The Allard series consists of very deep, well drained nearly level to gently sloping soils that formed in a mantle of silty deposits 20 to 40 inches deep over stratified glacial outwash deposits. Allard soils are on primary terraces along streams and on the higher secondary terraces. Slopes range from 0 to 8 percent.

Allard soils are in a drainage sequence that includes the moderately well drained Olean soils. These soils are closely associated with Chenango, Castile, Unadilla, Tioga and Middlebury soils. They do not have the content of gravel within the upper 20 inches that is characteristic of the Chenango soils or the Castile soils. The silty Unadilla soils are not underlain by stratified glacial deposits within a depth of 40 inches. Allard soils are higher on the landscape than the Tioga and Middlebury soils and are not subject to flooding.

Typical pedon of Allard silt loam, 0 to 3 percent slopes; in the town of Freedom; north side of Lime Lake Road about 0.5 miles west of the hamlet of Elton:

- Ap—0 to 9 inches; dark grayish brown (10YR 4/2) silt loam; weak fine and medium granular structure; very friable; many fine roots; moderately acid; abrupt smooth boundary.
- Bw1—9 to 17 inches; yellowish brown (10YR 5/6) silt loam; weak fine subangular blocky structure; very friable; many fine roots; moderately acid; clear wavy boundary.
- Bw2—17 to 23 inches; yellowish brown (10YR 5/4) silt loam; weak medium subangular blocky structure; friable; common fine roots; strongly acid; gradual smooth boundary.
- Bw3—23 to 34 inches; pale brown (10YR 6/3) silt loam; weak medium subangular blocky structure; friable; few fine roots; strongly acid; abrupt smooth boundary.
- 2C1—34 to 38 inches; brown (10YR 5/3) very gravelly loamy sand; single grain; loose; 40 percent rock fragments; strongly acid; clear smooth boundary.
- 2C2—34 to 72 inches; grayish brown (10YR 5/2) stratified very gravelly sand; single grain; loose; 50 percent rock fragments; strongly acid.

The thickness of the solum, or the depth to contrasting deposits, ranges from 20 to 36 inches. The depth to bedrock is more than 60 inches. The content of rock fragments ranges, by volume, from 0 to 5 percent in the solum and from 0 to 60 percent in the substratum. Reaction ranges from very strongly acid to moderately acid in the surface layer and subsoil and from strongly acid to neutral in the substratum.

The Ap horizon has hue of 7.5YR or 2.5Y, value of 3 to 5, and chroma of 2 to 4. Texture in the fine earth fraction is silt loam, loam, very fine sandy loam, or fine sandy loam.

The Bw horizon has hue of 7.5YR or 5Y, value of 4 to 6, and chroma of 3 to 8. Texture in the fine earth fraction is silt loam or very fine sandy loam. Structure is weak

or moderate, granular or subangular blocky. Consistence ranges from very friable to firm.

The 2C horizon has hue of 5YR or 5Y, value of 3 to 5, and chroma of 2 to 4. The texture ranges from sand to very gravelly loamy sand. The material is commonly single grain and loose.

## **Almond Series**

The Almond series consists of very deep, somewhat poorly drained, nearly level to strongly sloping soils on uplands. The soils formed in glacial till deposits derived from shale, siltstone, and sandstone. Almond soils are on broad hills of upland till plains above elevations of 1,800 feet. Slopes range from 0 to 15 percent.

The Almond soils are in a drainage sequence with moderately well drained Salamanca soils. Almond soils are associated with the Napoli, Yorkshire, Hornellsville, Gretor and Ashville soils. Almond soils do not have the fragipan typical of the Napoli and Yorkshire soils. Almond soils are also better drained than the Ashville soils, and contain less clay than the Hornellsville soils. Almond soils do not have bedrock within a depth of 40 inches that is characteristic of the Hornellsville and Gretor soils.

Typical pedon of Almond silt loam, 0 to 3 percent slopes; in the town of Lyndon; 1.2 miles east of North Center Road and Porter Road, 100 feet north of Porter Road:

- Ap—0 to 7 inches; very dark grayish brown (10YR 3/2) silt loam; moderate fine and medium granular structure; friable; many fine roots; 10 percent rock fragments; very strongly acid; abrupt smooth boundary.
- Bw1—7 to 11 inches; brown (10YR 5/3) silt loam; weak fine subangular blocky structure; very friable; common fine roots; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation within the matrix; and light brownish gray (10YR 6/2) iron depletions within the matrix; 10 percent rock fragments; very strongly acid; clear wavy boundary.
- Bw2—11 to 22 inches; light olive brown (2.5Y 5/4) channery silty clay loam; moderate fine and medium subangular blocky structure; friable; few fine roots; light brownish gray (10YR 6/2) ped faces; common medium prominent strong brown (7.5YR 5/8) masses of iron accumulation within the matrix; common medium distinct grayish brown (10YR 5/2) and light brownish gray (10YR 6/2) iron depletions within the matrix; 20 percent rock fragments; very strongly acid; clear wavy boundary.
- Bw3—22 to 37 inches; light olive brown (2.5Y 5/4) channery silty clay loam; weak medium subangular blocky structure; firm; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation within the matrix; light brownish gray (10YR 6/2) iron depletions within the matrix; 30 percent rock fragments; moderately acid; clear wavy boundary.
- C—37 to 72 inches; olive brown (2.5Y 4/4) channery silty clay loam; massive; firm; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation within the matrix; grayish brown (10YR 5/2) iron depletions within the matrix; 30 percent rock fragments, 15 percent larger than 3 inches, slightly acid.

The thickness of the solum ranges from 24 to 40 inches. The depth to bedrock is more than 60 inches. The content of rock fragments range from 10 to 35 percent in the solum and from 15 to 60 percent in the substratum. Reaction ranges from very strongly acid to moderately acid in the solum and from strongly acid to neutral in the substratum.

The Ap horizon has hue of 10YR or 2.5Y, value of 3 or 4 and chroma of 2 or 3. Texture is silt loam or silty clay loam in the fine earth fraction.

The B horizon has hue of 10YR or 5Y, values of 4 to 6, and chroma of 2 to 4. The texture is silt loam or silty clay loam in the fine earth fraction. Redoximorphic features are common to many, medium and distinct. Structure is weak or moderate, fine to coarse subangular blocky. Consistence is friable or firm.

The C horizon has hue of 10YR or 5Y, values of 4 to 6, and chroma of 2 to 4. The texture is silt loam or silty clay loam in the fine earth fraction. The material is massive, and consistence is firm or very firm.

### **Ashville Series**

The Ashville series consists of very deep, poorly drained, nearly level soils on glaciated uplands. The soils formed in silty local colluvium and glacial till deposits derived from underlying silty shale and smaller amounts of sandstone. Slopes range from 0 to 3 percent.

Ashville soils are associated with moderately well drained Schuyler and Chautauqua soils, somewhat poorly drained Fremont and Busti soils, the poorly drained Canandaigua soils, and very poorly drained Alden soil. Ashville soils are slightly better drained than the Alden soil, and generally receive less runoff from the adjacent soils. Schuyler and Fremont soils have textures similar to those of the Ashville soils but are better drained. Ashville soils have a higher content of clay than Chautauqua and Busti soils. These soils are not as silty as the poorly drained Canandaigua soils.

Typical pedon of Ashville silt loam; in the town of Yorkshire; 0.5 miles east of Weaver Road, near Delmad Road:

- A—0 to 9 inches; very dark gray (10YR 3/1) silt loam, light brownish gray (10YR 6/2) dry; moderate medium granular structure; friable; many fine roots; 5 percent rock fragments; neutral; clear smooth boundary.
- Bg1—9 to 16 inches; gray (10YR 5/1) silt loam; weak fine subangular blocky structure; friable; common fine roots; common pores; common medium distinct olive brown (2.5Y 4/4) and strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; 5 percent rock fragments; slightly acid; clear wavy boundary.
- Bg2—16 to 23 inches; grayish brown (10YR 5/2) silt loam; weak medium subangular blocky structure; slightly sticky; few fine roots in upper part; common pores; common medium distinct yellowish brown (10YR 5/4) and dark brown (10YR 3/3) masses of iron accumulation in the matrix; 5 to 10 percent rock fragments; slightly acid; clear smooth boundary.
- Bg3—23 to 44 inches; dark grayish brown (10YR 4/2) channery silt loam; weak very coarse prismatic structure parting to weak coarse subangular blocky; slightly firm; some brittleness; gray (10YR 5/1) coarse silt between prisms in upper part; gray (10YR 5/1) clay in fine pores in lower part; common medium distinct brown (7.5YR 4/4) masses of iron accumulation; light brownish gray (10YR 6/2) iron depletions in the matrix; 15 percent rock fragments; neutral; clear wavy boundary.
- Cg—44 to 72 inches; grayish brown (2.5Y 5/2) channery silt loam; few medium distinct brown (10YR 4/3) and yellowish brown (10YR 5/4) masses of iron accumulation in the matrix; massive; firm; 20 percent rock fragments; slightly alkaline; slightly effervescent.

The thickness of the solum ranges from 25 to 45 inches. The depth to bedrock is more than 60 inches. The content of rock fragments ranges, by volume, from 0 to 15 percent in the solum, and from 10 to 50 percent in the substratum. Reaction ranges from strongly acid to neutral in the surface layer, from moderately acid to neutral in the subsoil, and from moderately acid to moderately alkaline in the substratum.

The A or Ap horizon has hue of 2.5Y or 10YR, value of 2 or 3, (6 or 7 dry) and chroma of 1 or 2. The texture is loam, very fine sandy loam or silt loam.

The Bg horizon has hue of 10YR or 5Y, value of 3 to 6, and chroma of 1 or 2. Texture is loam, silt loam or silty clay loam. It has few to many, faint to distinct high and low chroma redoximorphic features. Structure is weak or moderate subangular blocky, or coarse or very coarse prismatic. Consistence is firm or friable.

The Cg horizon has hue and value similar to the B horizon and chroma of 1 to 4. The texture is silt loam, loam or fine sandy loam in the fine earth fraction. The material is massive, or has weak or moderate plate like divisions. Consistence is friable or firm.

#### Atkins Series

The Atkins series consists of very deep, poorly drained, nearly level soils that formed in recent alluvium along major streams and their tributaries in the southern part of the county. The Atkins soils are in the lowest parts of the flood plain, commonly in slack water areas farthest from the stream. Slope ranges from 0 to 3 percent.

Atkins soils are in a drainage sequence that includes moderately well drained Philo soils, and well drained Pope soils. Atkins soils are located in the lowest positions on the landscape and therefore receive a considerable amount of runoff from the adjacent soils. Atkins soils are associated with Canandaigua, Halsey, Holderton and Middlebury soils. Atkins soils are wetter than Holderton or Middlebury soils and contain more clay in the subsoil. Atkins soils lack the sand and gravel content of the Halsey soils, and Atkins soils are frequently flooded unlike the silty Canandaigua soils.

Typical pedon of Atkins silt loam; in the town of Portville; 0.8 mile south of Barberton Road and NY Route 305, 125 feet east of NY Route 305:

- A—0 to 4 inches; very dark gray (10YR 3/1) silt loam; weak fine granular structure; friable; many fine roots; strongly acid; clear smooth boundary.
- Bg1—4 to 16 inches; dark gray (2.5Y 4/1) loam; weak fine subangular blocky structure; friable; many fine roots; many medium distinct strong brown (7.5YR 5/8) iron concentration in the matrix; strongly acid; clear wavy boundary.
- Bg2—16 to 24 inches; gray (10YR 5/1) loam; weak medium subangular blocky structure; friable; few roots; common medium distinct strong brown (7.5YR 5/8) iron concentration in the matrix; strongly acid; clear wavy boundary.
- Bg3—24 to 38 inches; gray (10YR 6/1) silty clay loam; weak medium subangular blocky structure; firm, slightly plastic; few medium distinct strong brown (7.5YR 5/8) iron concentration in the matrix; strongly acid; clear wavy boundary.
- Cg1—38 to 55 inches; gray (10YR 6/1) sandy loam; massive; friable; strongly acid; clear wavy boundary.
- Cg2—55 to 72 inches; gray (10YR 5/1) gravelly sandy loam; massive; friable; 20 percent rock fragments; strongly acid.

The thickness of the solum ranges from 25 to 50 inches. The depth to bedrock is more than 60 inches. Rock fragments are commonly absent, but may range from 0 to 20 percent by volume in the solum and from 0 to 60 percent by volume in the C horizon. Reaction ranges from very strongly acid or strongly acid above depths of 40 inches and very strongly acid to moderately acid below 40 inches.

The A horizon has hue of 10YR, value of 3 to 7, and chroma of 1 to 4. The texture in the fine earth fraction is generally silt loam but includes loam and silty clay loam.

The Bg horizon has hue of 7.5YR or 5Y, value of 4 to 7, and chroma of 0 to 2. The texture in the fine earth fraction is silty clay loam, silt loam, loam and fine sandy loam. Structure is weak or moderate, fine or medium, subangular blocky. Consistence is friable or firm.

The C horizon has hue of 7.5YR or 5Y, value of 4 to 7, and chroma of 0 to 8. The C horizon is weakly stratified. The texture in the fine earth fraction is silty clay loam, silt loam, loam, and sandy loam. The material is massive or has plate like divisions. Consistence is friable or firm.

## **Barcelona Series**

The Barcelona series consists of deep, somewhat poorly drained, nearly level to gently sloping soils on glacial lake plains. These soils formed in silty lacustrine sediments over glacial till. Soft shale is at a depth of 40 to 60 inches. Slopes range from 0 to 8 percent.

Barcelona soils are closely associated with Canandaigua, Canadice, Niagara, Rhinebeck, and Minoa soils. Barcelona soils have textures similar to those of Canandaigua and Niagara soils but are underlain by glacial till and shale bedrock. These soils do not have the sandy textures that are typical of Minoa soils, and they have a lower content of clay than Rhinebeck and Canadice soils.

Typical pedon of Barcelona silt loam, 0 to 3 percent slopes; in the town of Perrysburg; 350 yards south of County Route 42, and 0.6 mile west of Van Vleck Road and County Route 42:

- Ap—0 to 9 inches; very dark grayish brown (10YR 3/2) silt loam; weak fine subangular blocky structure; friable; many fine roots; less than 2 percent rock fragments; slightly acid; abrupt smooth boundary.
- Beg—9 to 21 inches; grayish brown (10YR 5/2) silt loam; weak medium subangular blocky structure; friable; common fine roots; thin clay flows in pores and on ped faces; common medium distinct yellowish brown (10YR 5/8) masses of iron accumulation within the matrix; common medium distinct light brownish gray (10YR 6/2) iron depletions in the matrix; less than 2 percent rock fragments; moderately acid; clear wavy boundary.
- Bt—21 to 36 inches; brown (10YR 4/3) silty clay loam; moderate medium subangular blocky structure; firm; few fine roots; distinct clay flows in pores and on ped faces; common medium distinct yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; common medium distinct gray (10YR 6/1) iron depletions in the matrix; 2 percent rock fragments; moderately acid; clear wavy boundary.
- 2BC—36 to 42 inches; brown (10YR 4/3) channery silt loam; weak medium platy structure; firm; yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; common medium distinct gray (10YR 6/1) iron depletions in the matrix; 15 percent rock fragments; moderately acid; clear wavy boundary.
- 2C—2 to 46 inches; gray (10YR 6/1), brown (10YR 4/3) and yellowish brown (10YR 5/6) very channery silt loam; massive; firm; 50 percent rock fragments; moderately acid; abrupt smooth boundary.
- 3R—46 inches; shale bedrock.

The thickness of the solum ranges from 20 to 50 inches. The depth to bedrock, typically shale and siltstone, ranges from 40 to 60 inches. The content of rock fragments consisting mainly of channery fragments and gravel ranges, by volume, from 0 to 5 percent in the surface layer and the upper part of subsoil and from 15 to 50 percent in the lower part of the subsoil and in the substratum. Reaction ranges from moderately acid to neutral in the surface layer, and from moderately acid to slightly alkaline in the subsurface layer, subsoil, and substratum.

The Ap horizon has a hue of 10YR or 2.5Y, value of 3 or 4, and chroma of 2 or 3. The texture is silt loam, very fine sandy loam or loam in the fine earth fraction.

The BEg horizon has hue of 10YR or 5Y, value of 4 or 5, and chroma of 1 or 2. The texture is silt loam, silty clay loam or very fine sandy loam.

The Bt horizon has hue of 7.5YR or 5Y, value of 4 to 6, and chroma of 2 to 6. The texture is silt loam or silty clay loam in the fine earth fraction. Structure is weak or moderate, fine or medium, angular or subangular blocky. Consistence is friable or firm.

The 2BC horizon has hue of 10YR or 5Y, value of 4 to 6, and chroma of 1 to 6. The texture is silt loam, silty clay loam or loam in the fine-earth fraction. Structure is angular or subangular blocky, or platy. Consistence is friable or firm.

The 2C horizon has color and texture similar to the 2BC horizon. It is massive or has plate-like divisions. Consistence is friable or firm.

The 3R horizon is horizontal bedded shale or siltstone.

## **Brinkerton Series**

The Brinkerton series consists of very deep, poorly drained, nearly level or gently sloping soils that formed in silty colluvium derived from shale and siltstone. These soils are on foot slopes of the steeper slopes, concave basins in upland areas and colluvial fans. Slopes range from 0 to 8 percent.

Brinkerton soils are in a drainage sequence with somewhat poorly drained Portville soils and moderately well drained Buchanan soils. They are closely associated with Rayne, Cavode, Atkins, and Canandaigua soils. None of these soils have a fragipan. Additionally, Rayne and Cavode soils are better drained, and Atkins and Canandaigua soils generally lack rock fragments.

Typical pedon of Brinkerton silt loam, 0 to 3 percent slope; in the town of Red House; in Allegany State Park; 1.2 miles north of France Brook Road and Allegany State Park Route 2, 50 feet east of Allegany State Park Route 2.

- Ap—0 to 7 inches; very dark gray (10YR 3/1) silt loam; weak fine granular structure; friable; many fine roots with oxidized rhizospheres; 5 percent rock fragments; strongly acid; abrupt smooth boundary.
- Btg1—7 to 12 inches; gray (10YR 6/1) silty clay loam; moderate medium subangular blocky structure; friable; common fine and medium roots; common distinct clay films on all faces of peds; common medium distinct strong brown (7.5YR 4/6) and brown (10YR 4/3) masses of iron accumulation in the matrix; 5 percent rock fragments; strongly acid; gradual wavy boundary.
- Btg2—12 to 25 inches; gray (10YR 6/1) silty clay loam; moderate medium subangular blocky structure; friable; few fine roots; common distinct clay films on faces of all peds; many medium prominent strong brown (7.5YR 5/8) masses of iron accumulation in the matrix; common medium distinct black (10YR 2/1) manganese stains; 5 percent rock fragments; strongly acid; gradual wavy boundary.
- Btxg—25 to 45 inches; grayish brown (2.5Y 5/2) channery silt loam; moderate coarse prismatic structure parting to moderate medium subangular blocky; firm, brittle; gray (5Y 5/1) prism faces with strong brown (7.5YR 5/8) exteriors; few distinct clay films on faces of all peds; common medium distinct black (10YR 2/1) manganese stains; many medium prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; 15 percent rock fragments; strongly acid; clear wavy boundary.
- C—45 to 72 inches; brown (10YR 4/3) channery silt loam; massive; firm; common medium prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; 15 percent rock fragments; strongly acid.

The thickness of the solum ranges from 40 to 65 inches. The depth to bedrock is greater than 60 inches. The depth to the fragipan ranges from 11 to 30 inches. The content of rock fragments ranges, by volume, from 0 to 10 percent by volume above the fragipan, from 0 to 30 in the fragipan, and from 10 to 80 percent in the

substratum. Reaction ranges from very strongly acid to moderately acid in the solum, and from strongly acid to slightly acid in the substratum.

The Ap horizon is neutral, or has hue of 10YR or 2.5Y, value of 3 to 6, and chroma of 0 to 3. Texture in the fine earth fraction ranges from silt loam to silty clay loam.

The Bt horizon is neutral, or has hue of 7.5YR or 5Y, value of 4 to 6, and chroma of 0 to 2. Texture in the fine earth fraction is silty clay loam or silt loam. Structure is weak or moderate subangular blocky or prismatic. Consistence ranges from friable or firm.

The Btx horizon is neutral, or has hue of 7.5YR or 2.5Y, value of 4 to 6, and chroma of 0 to 3, and has redoximorphic features with shades of gray, brown and yellow. Texture in the fine earth fraction is silt loam, loam, clay loam, or silty clay loam. Structure is prismatic or platy, or the material is massive. Consistence ranges from firm to very firm.

The C horizon is neutral, or has hue of 7.5YR or 2.5Y, value of 4 to 6, and chroma of 0 to 4, and has redoximorphic features with shades of gray and brown. Texture in the fine earth fraction is silt loam, silty clay loam, or loam. The material is massive or has plate like divisions. Consistence is firm or very firm.

### **Buchanan Series**

The Buchanan series consists of very deep, moderately well drained, gently sloping to moderately steep soils on foot slopes, side slopes, and benches of the unglaciated plateau. These soils formed in colluvium weathered from interbedded shale, siltstone and fine-grained sandstone. Slopes range from 3 to 25 percent.

Buchanan soils are in a drainage sequence that includes the somewhat poorly drained Portville soils, and the poorly drained Brinkerton soils. Buchanan soils are closely associated with well drained Gilpin and Rayne soils, somewhat poorly drained Cavode, and moderately well drained Eldred soils. Buchanan soils are deeper to bedrock than Gilpin soils, and have a fragipan layer which is lacking in Rayne, Cavode, and Eldred soils. They are also wetter than Rayne soils and contain less clay in the subsoil than Cavode soils.

Typical pedon of Buchanan silt loam, 15 to 25 percent slopes; in the town of Portville; 1,800 feet west of McCann Hollow Road and NY Route 16, 50 feet south of McCann Hollow Road:

- Ap—0 to 6 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; moderate fine granular structure; very friable; many fine roots; strongly acid, 10 percent rock fragments; abrupt smooth boundary.
- BE—6 to 16 inches; yellowish brown (10YR 5/6) channery silt loam; moderate medium subangular blocky structure; very friable; common fine and medium roots; 15 percent rock fragments; strongly acid; clear smooth boundary.
- Bt1—16 to 22 inches; yellowish brown (10YR 5/4) channery silt loam; moderate medium subangular blocky structure; friable; common fine roots; few very fine pores with few thin clay films lining pores; 15 percent rock fragments; strongly acid; clear wavy boundary.
- Bt2—22 to 33 inches; olive brown (2.5Y 4/4) channery clay loam; moderate medium subangular blocky structure; firm; few very fine roots; common fine pores; many distinct light brownish gray (2.5Y 6/2) continuous clay films on ped faces and lining pores; common medium distinct strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; common medium distinct light brownish gray (10YR 6/2) iron depletions in the matrix; few black (N 2/0) manganese concretions; 20 percent rock fragments; strongly acid; gradual wavy boundary.
- Btx—33 to 45 inches; olive brown (2.5Y 4/4) channery silt loam; weak coarse prismatic parting to weak coarse subangular blocky structure; very firm, brittle; common medium and very fine pores; many light brownish gray (10YR 6/2) clay films covering 50 percent of ped faces and lining pores; prominent streaks 1/2

inch thick with exterior strong brown (7.5YR 5/8) iron accumulations and interior light brownish gray (10YR 6/2) iron depletions; 30 percent rock fragments; strongly acid; clear wavy boundary

C—45 to 72 inches; olive brown (2.5Y 4/4) very gravelly silt loam; massive; firm; many coarse pores; 50 percent rock fragments; strongly acid.

The thickness of the solum ranges from 40 to up to 80 inches. The depth to bedrock is more than 60 inches. The content of rock fragments ranges, by volume, from 0 to 40 percent in individual horizons above the fragipan and from 5 to 60 percent in the fragipan and substratum. Reaction ranges from extremely acid to strongly acid throughout the soil.

The Ap or A horizon has hues of 7.5YR or 10YR, value of 3 to 6, and chroma of 1 to 4. Fine earth texture is fine sandy loam, sandy loam, silt loam, or loam.

A BE horizon is present in some pedons with hue of 10YR or 7.5YR, value and chroma of 5 or 6. Texture of the fine earth fraction is silt loam or loam.

The Bt horizon has hue of 10YR or 5Y, value of 4 to 6 and chroma of 3 to 6. It has low chroma redoximorphic features in the lower part. Texture of the fine earth fraction is silt loam, loam, clay loam, or sandy clay loam. Structure is weak or moderate, fine or medium subangular blocky. Consistence is friable or firm.

The Btx horizon has hue of 10YR or 5Y, value of 4 to 6, and chroma of 3 to 6. Texture of the fine earth fraction is silt loam, loam, clay loam, or sandy clay loam. Structure is weak or moderate prismatic parting to platy or subangular blocky. Consistence is firm or very firm and brittle.

The C horizon has hue of 5YR or 2.5Y, value of 4 to 6 and chroma of 1 to 6. Texture of the fine earth fraction is silt loam, loam, sandy clay loam, or clay loam.

### **Busti Series**

The Busti series consists of very deep, somewhat poorly drained, nearly level to strongly sloping soils on uplands. These soils formed in glacial till deposits derived from siltstone, sandstone and smaller amounts of shale. Slopes range from 0 to 15 percent.

Busti soils are in a drainage sequence that includes the well drained Chadakoin soils, moderately well drained Chautauqua soils, and poorly drained Ashville soils. Busti soils are associated with Fremont, Darien, Volusia, and Erie soils. They are also associated with Orpark soils, which have bedrock at a depth of 20 to 40 inches. Busti soils do not have the fragipan that is characteristic of Volusia and Erie soils, and they have less clay than Fremont and Darien soils.

Typical pedon of Busti silt loam, 3 to 8 percent slopes; in the town of Cold Springs; 1,000 feet east of Tyler Whitmore and Earl Seaton Road, 20 feet north of Earl Seaton Road:

- Ap—0 to 8 inches; very dark grayish brown (10YR 3/2) silt loam; moderate fine and medium granular structure; friable; many fine roots; 10 percent rock fragments; moderately acid; abrupt smooth boundary.
- Eg—8 to 13 inches; grayish brown (10YR 5/2) loam; weak medium subangular blocky structure; friable; common fine roots; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation within the matrix; common medium distinct light brownish gray (10YR 6/2) iron depletions within the matrix; 10 percent rock fragments; moderately acid; abrupt wavy boundary.
- Bw1—13 to 26 inches; brown (10YR 5/3) gravelly loam; weak medium subangular blocky structure; friable; grayish brown (10YR 5/2) ped faces; few fine roots; common medium distinct strong brown (7.5YR 5/6) masses of iron accumulation within the matrix; common medium distinct light brownish gray (10YR 6/2) iron

- depletions within the matrix; 20 percent rock fragments; moderately acid; clear wavy boundary.
- Bw2—26 to 35 inches; brown (10YR 4/3) gravelly loam; weak medium subangular blocky structure; friable; common medium distinct yellowish brown (10YR 5/6) and reddish brown (5YR 5/4) masses of iron accumulation, and common medium distinct grayish brown (10YR 5/2) iron depletions; 25 percent rock fragments; moderately acid; clear wavy boundary.
- BC—35 to 39 inches; brown (10YR 4/3) gravelly loam; weak medium subangular blocky structure; firm; few medium distinct grayish brown (10YR 5/2) and yellowish brown (10YR 5/6) masses of iron accumulation; 25 percent rock fragments; slightly acid; clear wavy boundary.
- C—39 to 72 inches; brown (10YR 4/3) gravelly loam; massive; friable; few fine distinct grayish brown (10YR 5/2) iron depletions and yellowish brown (10YR 5/6) masses of iron accumulation; 25 percent rock fragments; slightly acid.

The thickness of the solum ranges from 20 to 40 inches. The depth to bedrock is more than 60 inches. The content of rock fragments ranges, by volume, from 5 to 15 percent in the surface layer, from 10 to 25 percent in the subsoil, and from 15 to 35 percent in the substratum. Reaction ranges from moderately acid to neutral throughout the profile.

The Ap horizon has hue of 7.5YR or 2.5Y, value of 3 or 4, and chroma of 2 or 3. Texture of the fine earth fraction is silt loam or loam.

The Eg horizon has hue of 7.5YR or 2.5Y, value of 5 to 7, and chroma of 2. Texture of the fine earth fraction is silt loam or loam. Consistence is very friable or friable.

The Bw horizon has hue of 7.5YR or 2.5Y, value of 4 or 5, and chroma of 2 to 4. Medium or coarse, distinct redoximorphic features consisting of both iron depletions and iron masses are common to many. Texture of the fine-earth fraction is silt loam or loam. Structure is prismatic or subangular blocky. Consistence ranges from very friable through firm.

The BC horizon is similar to the Bw horizon except structure is weak subangular blocky, prismatic or platy, or the horizon is massive.

The C horizon has hue of 7.5YR or 2.5Y, value of 4 to 6, and chroma of 1 to 4. Texture of the fine-earth fraction is silt loam or loam. Consistence is friable or firm. The horizon is massive, or has weak plate-like divisions.

### Canadice Series

The Canadice series consists of very deep, poorly drained soils that formed in glacial lake sediments that have a high content of clay. The Canadice soils are in slight depressions in old glacial lake basins. Slopes range from 0 to 3 percent.

Canadice soils are the poorly drained member of the drainage sequence that includes somewhat poorly drained Rhinebeck soils. The Canadice soils are also associated with Canandaigua, Lamson, Niagara, and Tonawanda soils. Canadice soils have higher clay content in the subsoil than the silty Canandaigua soils and sandy Lamson soils. Canadice soils are not as well drained as the Niagara and Tonawanda soils and has a higher clay content than these soils.

Typical pedon of Canadice silty clay loam; in the town of Yorkshire; 0.8 mile south of Eddy Road, 1.0 mile west of the railroad tracks:

- Ap—0 to 8 inches; very dark gray (10YR 3/1) silty clay loam; light brownish gray (2.5Y 6/2) dry; moderate medium and coarse subangular blocky structure; friable; moderately acid; abrupt smooth boundary.
- Btg1—8 to 18 inches; grayish brown (2.5Y 5/2) silty clay loam; moderate medium angular blocky structure; firm; common fine roots; few gray (10YR 5/1) clay films on ped faces; many medium distinct yellowish brown (10YR 5/6) masses of iron accumulation; slightly acid; clear wavy boundary.

Btg2—18 to 29 inches; olive gray (5Y 5/2) silty clay; moderate coarse prismatic structure parting to medium angular blocky structure; firm; thin gray (10YR 5/1) clay films on ped faces; many medium prominent strong brown (7.5YR 5/6) masses of iron accumulation; slightly acid; gradual smooth boundary.

- Btg3—29 to 42 inches; dark gray (5Y 4/1) silty clay; weak coarse angular blocky structure; firm; continuous gray (5Y 5/1) clay films on ped faces; many medium prominent strong brown (7.5YR 5/6) masses of iron accumulation; neutral; gradual smooth boundary.
- Cg—42 to 72 inches; grayish brown (2.5Y 5/2) silty clay loam with varves of silty clay; massive; firm; common medium distinct dark brown (10YR 4/3) masses of iron accumulation; common medium distinct gray (N 5/0) iron depletions; slightly alkaline.

The thickness of the solum ranges from 28 to 58 inches. The depth to bedrock is more than 60 inches. Rock fragments commonly do not occur in the profile, but in some pedons they make up as much as 2 percent of the profile. Reaction ranges from very strongly acid to slightly acid in the A horizon, very strongly acid to slightly alkaline in the B horizon, and from neutral to moderately alkaline in the C horizon.

The Ap horizon has a hue of 10YR or 2.5Y, value of 3 to 5 and chroma of 1 or 2. Structure is weak or moderate, fine to coarse subangular blocky or angular blocky. The texture of the fine earth fraction is silt loam or silty clay loam.

The Bt horizon has hue of 10YR or 5Y or is neutral in hue. It has value of 4 to 6, and chroma of 0 to 2. The texture of the fine earth fraction ranges from silty clay loam to clay. Structure is coarse or very coarse prismatic parting to moderate, medium subangular blocky. Consistence is firm.

The Cg horizons have colors and textures similar to those of the Bt horizon. The Cg horizon typically is massive or varved.

## Canandaigua Series

The Canandaigua series consists of very deep, poorly drained and very poorly drained, nearly level soils that formed in lacustrine deposits of silt, very fine sand and clay. These soils are on glacial lake plains, in narrow drainageways and basin-like areas within the larger valleys, and in depressional areas on uplands where water-sorted deposits have accumulated. Slopes range from 0 to 3 percent.

Canandaigua soils are in a drainage sequence that includes the moderately well drained Collamer soils and the somewhat poorly drained Niagara soils. Canandaigua soils are also associated with Alden, Ashville, Canadice, and Lamson soils. In the uplands, they are in landscape positions similar to those of Ashville soils; however, they do not have the content of rock fragments that is typical of Ashville soils. At the lower elevations, Canandaigua soils are in landscape positions similar to those of Alden, Canadice, and Lamson soils. These soils contain less clay than the Canadice soils and more silt and clay than the sandy Lamson soils. They do not have the content of rock fragments that are typical of Alden soils.

Typical pedon of Canandaigua silt loam; in the town of Dayton; 150 feet south of Bentley Road, 1.0 mile east of Bentley Road and County Route 2:

- Ap—0 to 9 inches; very dark gray (10YR 3/1) silt loam, gray (10YR 5/1) dry; weak medium granular structure; friable; many fine roots; slightly acid; abrupt smooth boundary.
- Bg1—9 to 18 inches; gray (10YR 6/1) silty clay loam; moderate medium subangular blocky structure; friable; common fine roots; common medium prominent strong brown (7.5YR 5/6) and yellowish brown (10YR 5/4) masses of iron accumulation; neutral; gradual smooth boundary.

- Bg2—18 to 32 inches; gray (10YR 5/1) silty clay loam; moderate medium subangular blocky structure; friable; gray (10YR 6/1) ped faces; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation; common medium distinct gray (10YR 6/1) iron depletions; neutral; gradual wavy boundary.
- C1—32 to 44 inches; gray (10YR 6/1) silty clay loam; massive; friable; common medium distinct grayish brown (10YR 5/2) iron depletions and yellowish brown (10YR 5/6) masses of iron accumulation; neutral; clear wavy boundary.
- C2—44 to 72 inches; yellowish brown (10YR 5/6), grayish brown (10YR 5/2) and gray (10YR 6/1) silt loam; massive; friable; slightly alkaline; slightly effervescent.

The thickness of the solum ranges from 20 to 40 inches. The depth to bedrock is more than 60 inches. Rock fragments commonly do not occur, but in some pedons they make up as much as 10 percent of the profile. The depth to free carbonates range from 18 to 60 inches, though in some pedons they may not occur within 80 inches. Reaction ranges from moderately acid to slightly alkaline in the solum, and from slightly acid to moderately alkaline in the substratum.

The Ap horizon has hue of 5YR or 2.5Y, value of 2 or 3, and chroma of 0 to 2. Texture of the fine earth fraction is silt loam, very fine sandy loam, loam, or fine sandy loam, or mucky analogs.

The Bg horizon has hue of 5YR or 2.5Y or is neutral in hue. It has value of 5 to 7, and chroma of 0 to 2. Texture of the fine earth fraction is silt loam, very fine sandy loam or silty clay loam. Structure is weak to strong, very fine to coarse subangular blocky. Consistence is friable to firm.

The C horizon has hue of 5YR or 5Y, value of 3 or 6, and chroma of 1 to 3. Texture of the fine earth fraction is silty clay loam, silt loam, or very fine sandy loam. The material is massive or has plate like divisions. Consistence is friable to firm.

## Canaseraga Series

The Canaseraga series consists of very deep, moderately well drained, nearly level to strongly sloping soils formed in a windblown silty mantle overlying firm glacial till derived from siltstone, shale and some sandstone. These soils are on side slopes and in convex areas on hilltops of glaciated and dissected uplands. Slopes range from 0 to 15 percent.

Canaseraga soils are in a drainage sequence that includes the somewhat poorly drained Dalton soils. Mardin, Schuyler, Valois and Chautauqua soils are in similar positions on the landscape. Canaseraga soils have a mantle of silty material that is not present in areas of the Mardin soils, and contain less clay than Schuyler soils. Also, they have a dense fragipan that is not present in Schuyler, Valois, and Chautauqua soils.

Typical pedon of Canaseraga silt loam, 3 to 8 percent slopes; in the town of Farmersville; 0.2 mile east of Laidlaw Road about 1 mile from Pigeon Hill Road:

- A—0 to 5 inches; dark brown (10YR 3/3) silt loam; moderate fine granular structure; very friable; many fine roots; strongly acid; clear smooth boundary.
- Bw1—5 to 9 inches; strong brown (7.5YR 5/6) silt loam; weak fine subangular blocky structure; very friable; common fine roots; common pores; strongly acid; clear wavy boundary.
- Bw2—9 to 18 inches; yellowish brown (10YR 5/4) silt loam; weak medium subangular blocky structure; friable; common fine roots; common fine pores; moderately acid; abrupt wavy boundary.
- Bw3—18 to 23 inches; brown (10YR 5/3) silt loam; weak coarse subangular blocky structure; friable; few fine roots; common fine pores; common medium distinct brown (7.5YR 5/4) masses of iron accumulation; moderately acid; abrupt wavy boundary.

Bx1—23 to 28 inches; brown (10YR 5/3) silt loam; moderate thin platy structure; firm; some brittleness; common fine pores; common medium distinct strong brown (7.5YR 5/6) masses of iron accumulation; common medium distinct light brownish gray (10YR 6/2) iron depletions; 5 percent rock fragments, consisting mainly of gravel; moderately acid; clear wavy boundary.

- 2Bx2—28 to 53 inches; olive brown (2.5Y 4/4) gravelly silt loam; weak very coarse prismatic structure; very firm and brittle; few fine pores; prisms coated with strong brown (7.5YR 5/6) and separated by gray (10YR 6/1) silt; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation; common medium faint grayish brown (2.5Y 5/2) iron depletions; 20 percent rock fragments, consisting mainly of gravel; moderately acid; gradual smooth boundary.
- 2C—53 to 72 inches; dark grayish brown (2.5Y 4/2) channery silt loam; massive; firm; few fine pores; few fine faint dark yellowish brown (10YR 4/4) masses of iron accumulation; 25 percent rock fragments, consisting mainly of gravel and channers; slightly acid.

The thickness of the solum ranges from 40 to 60 inches. The depth to bedrock is more than 60 inches. The thickness of the silty mantle ranges from 15 to 36 inches, and in some pedons the silty mantle extends into the upper part of the fragipan. The content of rock fragments ranges, by volume, from 0 to 10 percent in the silt mantle and from 10 to 40 percent below the mantle. Reaction ranges from very strongly acid to moderately acid in the surface layer and upper subsoil, from strongly acid to neutral in the fragipan, and from moderately acid to moderately alkaline in the substratum.

The A horizon has hue of 10YR or 7.5YR, value of 3 to 5, and chroma of 2 or 3. The texture of the fine earth fraction is very fine sandy loam, loam or silt loam.

The Bw horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 3 to 6. The texture of the fine earth fraction is very fine sandy loam or silt loam. Structure is weak or very weak, fine or medium, granular or subangular blocky. Consistence is friable or very friable.

The Bx horizon has hue of 7.5YR or 5Y, value of 4 or 5, and chroma of 2 to 4, with few or common, faint or distinct redoximorphic features. Structure is moderate of strong prismatic or platy. The texture of the fine earth fraction is silt loam or loam. Consistence is firm or very firm and brittle.

The 2Bx horizon has hue of 5YR or 5Y, value of 4 or 5, and chroma of 2 to 4, with few or common, faint or distinct redoximorphic features. Structure is moderate of strong prismatic. The texture of the fine earth fraction is silt loam or loam. Consistence is firm or very firm and brittle.

The 2C horizon has the same range in color and texture as the 2Bx horizon. It is massive or has weak or moderate thick plate like divisions. Consistence is firm or very firm.

## **Carlisle Series**

The Carlisle series consists of very deep, very poorly drained, organic soils that formed in black, well decomposed herbaceous and woody plant remnants. The organic deposit is more than 51 inches deep. These soils are in bogs on the lake plains and outwash plains. Slopes range from 0 to 2 percent.

Carlisle soils are in landscapes similar to those of Palms, Halsey, Alden, and Canandaigua soils. They are deeper to contrasting deposits than Palms soils. Carlisle soils also have an organic layer that is thicker than that of gravelly Halsey soils, silty Canandaigua soils, and Alden soils.

Typical pedon of Carlisle muck; in the town of Dayton; 1.3 miles south of village of Markham, 600 feet east of New York State Route 62:

- Oa1—0 to 15 inches; black (10YR 2/1 on broken face and rubbed) sapric material; 10 percent fiber and 5 percent rubbed; weak fine granular structure; friable; fibers are primarily live grass roots; neutral; abrupt smooth boundary.
- Oa2—15 to 72 inches; black (10YR 2/1 rubbed) sapric material; 5 percent fiber and a trace rubbed; weak fine granular structure to massive; friable; 15 percent woody fragments; neutral.

The reaction throughout the pedon ranges from very strongly acid to slightly alkaline. Woody fragments occur throughout the profile in most pedons, consisting of twigs, branches, logs or stumps and average from 15 to 30 percent by volume in the control section. Fragments range in size from 1/4 to more than a foot in diameter. The mean annual soil temperature ranges from 47 to 54 degrees F. The surface tier has hue of 10YR to 5YR or is neutral; value is 1 or 2 and the chroma ranges from 0 to 2. It is dominantly sapric material; however, some pedons contain hemic material and others have various proportions of both sapric and hemic materials. Some pedons have a thin fibric surface layer up to 2 inches thick. The structure of the surface tier is weak or medium, coarse to fine granular, or subangular blocky. Overwash phases have surface textures of silt loam or silty clay loam. The subsurface tier has hue of 5YR, 7.5YR or 10YR, value of 2 or 3, and chroma of 0 to 4. Chroma or value or both may change from 0.5 to 2 units upon rubbing.

Broken faces become darker upon brief exposure to air. The layer is dominated by sapric material with a rubbed fiber content of less than 16 percent of the organic volume. The subsurface tier has granular or blocky structure or is massive. The upper portion typically has weak or moderate, fine to coarse granular or blocky structure. The lower portion commonly is massive, but in some pedons has platy structure. The aggregates in this tier are quite firm, but break abruptly under pressure.

The unrubbed, well decomposed organic material resembles woody plant tissue. The bottom tier has colors similar to the subsurface tier and has variable amounts of woody and herbaceous layers; however, herbaceous fibers generally constitute the greater proportion. This tier commonly is massive but in some pedons it has weak coarse blocky or thick platy structure. The subsurface and bottom tiers are dominantly sapric material but some pedons have thin layers of hemic material. The combined thickness of these hemic layers is less than 10 inches.

## **Carrollton Series**

The Carrollton series consists of moderately deep, well drained, gently sloping to very steep soils that formed in material weathered from interbedded shale, siltstone and fine-grained sandstone. Bedrock is at a depth of 20 to 40 inches. The soils are on non-glaciated hilltops and side slopes above elevations of 1,800 feet, where the topography is influenced by the underlying bedrock. Slopes range from 3 to 50 percent.

The Carrollton soils are in a drainage sequence with somewhat poorly drained Frewsburg soils. Kinzua, Elko, Eldred, Mandy, and Onoville soils are on associated landscapes. Carrollton soils have bedrock at a depth of 20 to 40 inches, but Kinzua and Eldred soils have bedrock at a depth of more than 40 inches. Carrollton soils do not have the fragipan that is typical of the very deep Elko and Onoville soils. Carrollton soils lack the numerous rock fragments typical of Mandy soils.

Typical pedon of Carrollton channery silt loam, 25 to 35 percent slopes; in the town of Allegany; 3/4 mile southeast of Indian Creek Road and New York State Route 16, 50 feet north of Indian Creek road:

A—0 to 2 inches; very dark grayish brown (10YR 3/2) channery silt loam; pale brown (10YR 6/3) dry; weak medium granular structure; friable; 15 percent rock fragments; strongly acid; abrupt wavy boundary.

BE—2 to 6 inches; brown (7.5YR 5/4) channery silt loam; weak medium subangular blocky structure; friable; 20 percent rock fragments; strongly acid; gradual smooth boundary.

- Bt1—6 to 17 inches; brown (7.5YR 5/4) channery silt loam; moderate medium subangular blocky structure; friable; few distinct clay flows in pores and on ped faces; 20 percent rock fragments; strongly acid; gradual smooth boundary.
- Bt2—17 to 23 inches; yellowish brown (10YR 5/6) channery silt loam; weak medium subangular blocky structure; friable; few clay flows in pores and on ped faces; 25 percent rock fragments; strongly acid; abrupt smooth boundary.
- C—23 to 30 inches; yellowish brown (10YR 5/4) channery silt loam; weak medium plate-like divisions; friable; 30 percent rock fragments; strongly acid; abrupt smooth boundary.
- R—30 inches; olive (5Y 4/3) shale bedrock.

The thickness of the solum ranges from 18 to 36 inches. Bedrock is at a depth of 20 to 40 inches. The content of rock fragments, mainly channers and flagstones, ranges by volume, from 15 to 35 percent in the surface layer and subsoil, and from 15 to 50 percent in the substratum. Reaction is very strongly acid or strongly acid throughout the profile.

The A horizon has hue of 10YR or 2.5Y, value of 3 or 4, and chroma of 1 to 4. The texture is silt loam or loam in the fine-earth fraction.

The BE horizon has hue of 7.5YR to 2.5Y, value of 4 to 6, and chroma of 4 to 8. The texture is loam or silt loam in the fine earth fraction.

The Bt horizon has hue of 7.5YR to 2.5Y, value of 4 to 6, and chroma of 3 to 8. The texture is silt loam, loam, silty clay loam, or clay loam in the fine earth fraction. Structure is weak or moderate, angular or subangular blocky. Consistence is friable or firm.

The C horizon has hue of 7.5YR or 5Y, value of 4 to 6, and chroma of 3 to 8. The texture is silt loam, loam, silty clay loam or clay loam in the fine earth fraction. In some pedons this horizon may have redoximorphic features. Consistence is friable or firm. The horizon is massive or has plate-like divisions.

The R horizon is horizontal bedded siltstone, shale or fine grained sandstone bedrock.

### **Castile Series**

The Castile series consists of very deep, moderately well drained, nearly level or gently sloping, soils on terraces, outwash plains, and remnant deltas. These soils formed in glacial outwash deposits that have a high content of sand and gravel. Slopes range from 0 to 8 percent.

Castile soils are in a drainage sequence that includes the well drained Chenango soils, the somewhat poorly drained Red Hook soils, and the very poorly drained Halsey soils. They are associated with Valois, Chautauqua, Scio, Collamer, and Olean soils. They have more rock fragments in the subsoil and substratum than the silty Scio and Collamer soils. They do not have the silty mantle that is typical of Olean soils. Valois and Chautauqua soils are on uplands.

Typical pedon of Castile gravelly silt loam, 0 to 3 percent slopes; in town of Yorkshire; 0.3 mile south of Eddy Road and 0.2 miles west of rail road tracks:

- Ap—0 to 10 inches; dark grayish brown (10YR 4/2) gravelly silt loam; weak medium granular structure; very friable; many fine roots; 30 percent rock fragments; strongly acid; abrupt smooth boundary.
- Bw1—10 to 17 inches; yellowish brown (10YR 5/6)very gravelly silt loam; weak medium subangular blocky structure; friable; common fine roots; many fine pores; 35 percent rock fragments; strongly acid; clear smooth boundary.

- Bw2—17 to 30 inches; light olive brown (2.5Y 5/4) very gravelly loam; weak coarse subangular blocky structure; friable; few fine roots; many fine pores; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation within the matrix; common medium distinct gray (10YR 5/1) iron depletions within the matrix; 40 percent rock fragments; strongly acid; abrupt wavy boundary.
- 2C—30 to 72 inches; grayish brown (10YR 5/2) stratified very gravelly sand; single grain; loose; 55 percent rock fragments; strongly acid.

The thickness of the solum ranges from 24 to 40 inches. The depth to bedrock is more than 60 inches. The content of rock fragments range, by volume, from 15 to 30 percent in the surface, from 20 to 60 percent in the subsoil, and from 35 to 70 percent in the substratum. The rock fragments are mainly gravel but include up to 10 percent cobblestones and flagstones. Reaction ranges from very strongly acid through moderately acid in the solum and strongly acid through neutral in the substratum. The depth to carbonates ranges from 5 to 10 feet.

The Ap horizon has hue of 10YR or 2.5Y, value of 3 to 5, and chroma of 2 or 3. The texture of the fine earth fraction ranges from sandy loam to silt loam.

The Bw horizon has hue of 7.5YR to 2.5Y, value of 4 or 5, chroma of 3 to 6. It has high or low chroma redoximorphic features. The texture of the fine-earth fraction ranges from sandy loam to silt loam or the gravelly analogs of those textures. Structure is weak or moderate granular or subangular blocky. Consistence is very friable to firm.

The 2C horizon has hue of 7.5YR to 2.5Y, value of 4 or 5, and chroma of 2 to 4. The texture of the fine earth fraction ranges from loamy sand to loam (or the gravelly analogs of those textures) or the material is stratified sand and gravel.

### **Cavode Series**

The Cavode series consists of very deep, somewhat poorly drained, gently sloping to moderately steep soils on foot slopes, side slopes, and benches of the unglaciated plateau. These soils formed in material weathered from interbedded shale, siltstone and fine grained sandstone. Slopes range from 3 to 25 percent.

Cavode soils are associated with well drained Gilpin and Rayne soils, moderately well drained Buchanan soils, somewhat poorly drained Portville soils, and poorly drained Brinkerton soils. Cavode soils are deeper to bedrock and wetter than Gilpin soils. They have a higher clay content in the subsoil and are wetter than the Rayne soils. They lack the fragipan typical of Buchanan, Portville, and Brinkerton soils.

Typical pedon of Cavode silt loam, 15 to 25 percent slopes; in the town of South Valley; 1,600 feet southeast of Brown Run Road and Onoville Road, 150 feet north of Onoville Road:

- A—0 to 2 inches; very dark grayish brown (10YR 3/2) silt loam; moderate medium granular structure; friable; many fine roots; 5 percent rock fragments; very strongly acid; clear smooth boundary.
- BE—2 to 7 inches; brown (10YR 5/3) silt loam; weak fine subangular blocky structure; friable; common fine roots; 5 percent rock fragments; very strongly acid; gradual wavy boundary.
- Bt—7 to 14 inches; brown (10YR 5/3) silt loam; weak fine and medium subangular blocky structure; friable; common fine roots; few thin clay films on ped faces; common medium distinct strong brown (7.5YR 5/8) masses of iron accumulation and common medium distinct light brownish gray (10YR 6/2) iron depletions in the matrix; 10 percent rock fragments; very strongly acid; clear wavy boundary.
- Btg1—14 to 32 inches; light brownish gray (2.5Y 6/2) silty clay loam; moderate medium blocky structure; firm; few fine roots; few thin clay films on ped faces; common medium distinct strong brown (7.5YR 5/8) masses of iron accumulation

and common medium faint light brownish gray (10YR 6/2) iron depletions in the matrix; 10 percent rock fragments; very strongly acid; clear wavy boundary.

- Btg2—32 to 44 inches; light brownish gray (2.5Y 6/2) channery silty clay; strong medium blocky structure; firm; few thin distinct clay films on faces of peds and lining on all surfaces of pores; few prominent black (10YR 2/1) iron and manganese coatings; many medium prominent strong brown (7.5YR 5/8) masses of iron accumulation and common medium faint light brownish gray (10YR 6/2) iron depletions in the matrix; 15 percent rock fragments; very strongly acid; clear wavy boundary.
- BC—44 to 52 inches; brown (10YR 4/3) channery silty clay; weak medium subangular blocky structure; firm; few thin clay films on faces of peds; few prominent black (10YR 2/1) coatings; many medium prominent strong brown (7.5YR 5/8) masses of iron accumulation and common medium distinct gray (10YR 5/1) iron depletions in the matrix; 25 percent rock fragments; very strongly acid; clear wavy boundary.
- C—52 to 68 inches; brown (10YR 4/3) very channery silty clay loam; massive; firm; few prominent black (10YR 2/1) coatings; many medium prominent strong brown (7.5YR 5/8) masses of iron accumulation in the matrix; 45 percent rock fragments; very strongly acid; clear wavy boundary.
- R—68 inches; gray siltstone and fine grained sandstone.

The thickness of the solum ranges from 30 to 60 inches. The depth to bedrock is more than 60 inches. The content of rock fragments ranges, by volume, from 5 to 15 percent of the surface layer and subsoil, and from 0 to 60 percent in the BC horizon and substratum. Reaction ranges from extremely acid to strongly acid throughout the profile.

The Ap or A horizon has hue of 10YR or 2.5Y, value of 3 or 4, and chroma of 2 to 4. The texture of the fine earth fraction is silt loam or silty clay loam.

The BE horizon has hue of 10YR to 5Y, value of 4 to 6, and chroma of 2 to 6. The texture is silt loam, silty clay or silty clay loam in the fine earth fraction.

The Bt horizon has hue of 10YR to 2.5Y, value of 4 or 5, and chroma of 3 to 6. It has distinct or prominent high and low chroma redoximorphic features. The texture is silt loam, silty clay loam, or silty clay in the fine earth fraction. Structure is prismatic or weak to strong angular or subangular blocky. Consistence is friable or firm.

The Btg horizon has hue of 10YR to 5Y, value of 5 or 6, and chroma of 1 or 2. It has distinct or prominent high and low chroma redoximorphic features. The texture is silty clay loam, silty clay or clay in the fine earth fraction. Structure is prismatic, or weak to strong angular or subangular blocky. Consistence is friable or firm.

The BC horizon has colors and textures similar to the C horizon. Structure is prismatic, or weak to strong angular or subangular blocky. Consistence is firm.

The C horizon has hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 1 to 4. The texture is silty clay loam, silty clay or clay in the fine earth fraction. The material is massive, or has plate-like divisions. Consistence is firm.

## **Ceres Series**

The Ceres series consists of deep, well drained, gently sloping to very steep soils that formed in material weathered from red shale, siltstone, and sandstone. These soils are in areas of hilltops and side slopes where the topography is influenced by the underlying bedrock at elevations above 1,800 feet. Slopes range from 3 to 50 percent.

Ceres soils are associated with Carrollton, Mandy, Eldred, Kinzua, Elko, Flatiron and Onoville soils. They are redder in color and deeper over bedrock than Carrollton and Mandy soils. They are better drained than the brownish-colored Eldred, Elko, and Onoville soils, and lack the fragipan typical of Elko and Onoville soils. Ceres soils are

redder in color and have a higher content of clay than the Flatiron soils. Kinzua soils lack the red colors typical of Ceres soils and are also deeper to bedrock.

Typical pedon of Ceres channery silt loam, 15 to 25 percent slopes; in the town of Portville; 2,000 feet northwest of the intersection of Sherry Hill Road and Butternut Brook Road, and 10 feet west of Sherry Hill Road:

- A—0 to 3 inches, very dark brown (7.5YR 2/2) channery silt loam, brown (7.5YR 5/2) dry; moderate fine granular structure; very friable; many fine and few medium roots; 20 percent rock fragments; extremely acid; clear smooth boundary.
- BA—3 to 7 inches, reddish brown (2.5YR 4/4) channery silt loam; strong fine granular structure; very friable; many fine and common medium roots; 15 percent rock fragments; very strongly acid; clear smooth boundary.
- Bt1—7 to 12 inches; dusky red (10R 3/4) channery silt loam; moderate medium subangular blocky structure; very friable; common fine and few medium roots; few distinct weak red (10R 4/2) clay films on faces of peds; 15 percent rock fragments; very strongly acid; gradual wavy boundary.
- Bt2—12 to 22 inches, weak red (10R 4/4) channery silt loam; moderate medium subangular blocky structure; friable; common fine roots; few distinct weak red (10R 4/2) clay films on faces of peds; 30 percent rock fragments; very strongly acid; gradual wavy boundary.
- Bt3—22 to 29 inches, weak red (10R 4/4) very channery silty clay loam; weak thin platy structure parting to moderate fine angular blocky; friable; few fine roots; few faint weak red (10R 5/3) clay films on faces of peds and on rock fragments; 40 percent rock fragments; very strongly acid; gradual wavy boundary.
- C—29 to 44 inches, weak red (10R 4/4) extremely channery silt loam; massive; firm; 75 percent rock fragments; moderately acid; clear wavy boundary.
- R—44 inches, dusky red (10R 3/2) interbedded shale and siltstone bedrock.

The thickness of the solum ranges from 24 to 48 inches. The depth to bedrock is 40 to 60 inches. The content of rock fragments ranges, by volume, from 5 to 25 percent in the surface and BA horizon, from 10 to 40 percent in the Bt horizon, and from 60 to 90 percent in the substratum. Reaction ranges from neutral to extremely acid in the solum, and from moderately acid to very strongly acid in the substratum.

The A horizon has hue of 2.5YR to 7.5YR, value and chroma of 2 to 4. The texture of the fine earth fraction is silt loam, loam or fine sandy loam.

The BA horizon has hue of 10R to 5YR, value of 3 to 5, and chroma of 4 to 6. The texture is silt loam in the fine earth fraction. Structure is weak to strong, fine or medium granular, or subangular blocky. Consistence is friable or very friable.

The Bt horizon has hue of 10R to 5YR, value of 3 to 5, and chroma of 4 to 6. The texture is silt loam, loam, silty clay loam, or clay loam in the fine earth fraction. Structure is weak or moderate, fine or medium angular or subangular blocky. Consistence is friable or firm.

The C horizon has hue of 10R to 5YR, value of 3 or 4, and chroma of 4 to 6. The texture is silt loam, loam, or silty clay loam in the fine earth fraction. The material is massive, or has plate-like divisions.

### Chadakoin Series

The Chadakoin series consists of very deep, well drained, gently sloping to very steep soils on glaciated uplands. These soils formed in glacial till derived from sandstone, siltstone and shale. They are on upland till plains, hilltops and valley sides. Slopes range from 3 to 50 percent.

Chadakoin soils are in a drainage sequence that includes the moderately well drained Chautauqua soils, the somewhat poorly drained Busti soils, and the poorly drained Ashville soils. They are associated on the landscape with Langford, Valois,

Schuyler, Towerville and Chenango soils. Chadakoin soils do not have the fragipan typical of Langford soils. They have less clay than Schuyler and Towerville soils, and have less gravel in the subsoil than Valois and Chenango soils. Valois and Chenango soils are on stream terraces and on the lower lying moraines in valleys.

Typical pedon of Chadakoin channery silt loam, 25 to 35 percent slopes; in the town of Mansfield; adjacent to Boyce Hill Road about 0.5 miles west of junction with Hencoop Rd:

- A—0 to 4 inches; dark grayish brown (10YR 4/2) channery silt loam; moderate fine granular structure; very friable; many fine roots; 15 percent rock fragments; strongly acid; clear wavy boundary.
- A/B—4 to 9 inches; brown (10YR 4/3) channery silt loam; weak medium granular structure; very friable; many fine and medium roots; 15 percent rock fragments; very strongly acid; clear wavy boundary.
- Bw1—9 to 27 inches; brown (7.5YR 5/4) channery silt loam; weak fine subangular blocky structure; very friable; common fine roots; many pores; 15 percent rock fragments; very strongly acid; clear smooth boundary.
- Bw2—27 to 33 inches; dark yellowish brown (10YR 4/4) channery silt loam; moderate medium subangular blocky structure; friable; common fine roots; few fine faint strong brown (7.5YR 5/6) masses of iron accumulation; 20 percent rock fragments; strongly acid; gradual smooth boundary.
- C1—33 to 54 inches; brown (10YR 5/3) channery loam; massive; friable; many pores; 25 percent rock fragments; strongly acid; gradual smooth boundary.
- C2—54 to 72 inches; grayish brown (10YR 5/2) very channery loam; massive; friable; many pores; 40 percent rock fragments, content increasing with depth; strongly acid.

The thickness of the solum ranges from 30 to 50 inches. The depth to bedrock is more than 60 inches. The content of rock fragments ranges, by volume, from 5 to 30 percent in the upper part of the solum, from 15 to 35 percent in the lower part of the solum, and from 20 to 40 percent in the substratum. Reaction ranges from very strongly acid to moderately acid in the solum, and from strongly acid to slightly acid in the substratum.

The Ap horizon has 10YR hue, value of 3 or 4, and chroma of 2 to 4. The texture is silt loam or loam.

The Bw horizon has hue of 7.5YR to 2.5Y, value of 4 to 6, and chroma of 3 to 6. The texture is silt loam, loam or fine sandy loam in the fine earth fraction. Structure is weak or moderate, fine to coarse subangular blocky or granular. Consistence is very friable or friable.

The C horizon has hue of 10YR or 2.5Y, value of 3 to 5, and chroma of 2 to 4. Texture of the fine earth fraction is sandy loam, silt loam or loam. The material is massive or has plate like divisions. Consistence is friable or firm.

## Chautauqua Series

The Chautauqua series consists of very deep, moderately well drained, gently sloping to moderately steep soils on glaciated uplands. These soils formed in glacial till derived mainly from siltstone, fine grained sandstone and smaller amounts of shale. They are on till plains, hilltops and valley side slopes. Slopes range from 3 to 25 percent.

Chautauqua soils are in a drainage sequence that includes the well drained Chadakoin soils, the somewhat poorly drained Busti soils, and the poorly drained Ashville soils. They are associated on the landscape with Langford, Mardin, Schuyler, and Towerville soils. They do not have the fragipan that is typical of Langford and Mardin soils. They have less clay than Schuyler and Towerville soils, and are deeper over bedrock than Towerville soils.

Typical pedon of Chautauqua silt loam, 3 to 8 percent slopes; in the town of Conewango; 1,500 feet east of New York State Route 241 and Benson Road, and 200 feet north of Benson Road.

- Ap—0 to 9 inches; dark grayish brown (10YR 4/2) silt loam; moderate medium granular structure; friable; many fine roots; 10 percent rock fragments; moderately acid; abrupt smooth boundary.
- Bw1—9 to 21 inches; yellowish brown (10YR 5/6) silt loam; weak medium subangular blocky structure; friable; common fine roots; many brown (10YR 4/3) worm and root channels; 10 percent rock fragments; moderately acid; clear wavy boundary.
- Bw2—21 to 29 inches; brown (10YR 5/3) gravelly silt loam; moderate medium subangular blocky structure; firm; few fine roots; common medium distinct yellowish brown (10YR 5/8) masses of iron accumulation and faint grayish brown (10YR 5/2) iron depletions; 15 percent rock fragments; slightly acid; clear wavy boundary.
- Bw3—29 to 36 inches; brown (10YR 4/3) gravelly loam; weak medium subangular blocky structure; firm; few roots; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation, and faint dark grayish brown (10YR 4/2) iron depletions; 20 percent rock fragments; slightly acid; clear wavy boundary.
- C1—36 to 52 inches; brown (10YR 4/3) gravelly loam; massive; firm; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation, and grayish brown (10YR 5/2) iron depletions; 20 percent rock fragments; slightly acid; clear wavy boundary.
- C2—52 to 72 inches; grayish brown (10YR 5/2) gravelly loam; massive; firm; 20 percent rock fragments; slightly acid.

The thickness of the solum ranges from 22 to 45 inches. The depth to bedrock is more than 60 inches. The content of rock fragments ranges, by volume, from 5 to 15 percent in the surface layer, from 5 to 30 percent in the subsoil, and from 15 to 45 percent in the substratum. Reaction is moderately acid or slightly acid in the surface layer and ranges from strongly acid to slightly acid below the surface layer.

The Ap horizon has hue of 7.5YR to 2.5Y, value of 3 or 4, and chroma of 2 to 4. Texture is silt loam or loam in the fine earth fraction.

The Bw horizon has hue of 7.5YR to 2.5Y, value of 4 to 6, and chroma of 3 to 6. It has few or common, fine or medium, faint or distinct, low and high chroma redoximorphic features at a depth of 18 to 24 inches. The texture is silt loam or loam in the fine earth fraction, which consists of more than 60 percent silt plus very fine sand. Structure is weak or moderate, fine or medium subangular blocky. Consistence ranges from very friable to firm.

The C horizon has hue of 7.5YR to 2.5Y, value of 3 to 5, and chroma of 2 to 4. The texture is silt loam or loam in the fine earth fraction, with more than 60 percent silt plus very fine sand. Consistence is friable or firm.

## **Chenango Series**

The Chenango series consists of very deep, well drained, nearly level to very steep soils on glacial outwash plains. These soils formed on outwash terraces in the larger valleys and in positions on alluvial fans where post glacial side streams enter the major valleys. Slopes range from 0 to 50 percent.

Chenango soils are in a drainage sequence that includes the moderately well drained Castile soils, the somewhat poorly drained Red Hook soils, and the very poorly drained Halsey soils. Chenango soils are also associated on the landscape with Allard, Valois, Unadilla, and Tioga soils. They do not have the thick, silty mantle that is typical of the Allard and Unadilla soils. Chenango soils have a well sorted, gravelly substratum in contrast to the random sorted substratum that is typical of

Valois soils. Chenango soils have a higher content of gravel than Tioga soils and are not subject to flooding.

Typical pedon of Chenango gravelly silt loam, 3 to 8 percent slopes; in the town of Freedom; near a gravel pit north of New York Route 98 near the junction with Galen Hill Road:

- Ap—0 to 9 inches; dark grayish brown (10YR 4/2) gravelly silt loam; weak fine granular structure; very friable; many fine roots; 20 percent rock fragments; moderately acid; abrupt smooth boundary.
- Bw1—9 to 17 inches; yellowish brown (10YR 5/4) gravelly silt loam; weak fine and medium subangular blocky structure; friable; common fine roots; many pores; 20 percent rock fragments; strongly acid; clear wavy boundary.
- Bw2—17 to 25 inches; yellowish brown (10YR 5/6) very gravelly silt loam; weak fine subangular blocky structure; very friable; few fine roots; many pores; 35 percent rock fragments; strongly acid; clear wavy boundary.
- Bw3—25 to 30 inches; dark yellowish brown (10YR 4/4) very gravelly loam; weak medium granular structure; very friable; 40 percent rock fragments; moderately acid; abrupt wavy boundary.
- BC—30 to 35 inches; brown (10YR 4/3) very gravelly coarse sandy loam; weak fine subangular blocky structure; very friable; 50 percent rock fragments; moderately acid; abrupt wavy boundary.
- 2C—35 to 72 inches; grayish brown (10YR 5/2) stratified very gravelly sand; single grain; loose; 55 percent rock fragments; moderately acid.

The thickness of the solum ranges from 24 to 50 inches. The depth to bedrock is more than 60 inches. The content of rock fragments ranges, by volume, from 10 to 50 percent in the surface layer, from 15 to 60 percent in the subsoil and from 30 to 70 percent in the substratum. Reaction ranges from very strongly acid to moderately acid in the surface layer and subsoil and from strongly acid to slightly alkaline in the substratum.

The Ap horizon has a hue of 7.5YR to 2.5Y, value of 3 to 5, and chroma of 2 or 3. The texture of the fine earth fraction is sandy loam, loam, or silt loam or the gravelly, very gravelly, channery, or very channery analogs of those textures.

The Bw horizon has hue of 7.5YR to 2.5Y, values of 4 to 6, and chroma of 3 to 6. The texture of the fine earth fraction is fine sandy loam, loam, very fine sandy loam, or silt loam or the gravelly, very gravelly, channery, or very channery analogs of those textures. Structure is weak, granular or subangular blocky. Consistence ranges from very friable to firm.

The BC horizon has hue of 7.5YR to 2.5Y, value of 4 to 6, and chroma of 3 to 6. Texture in the fine earth fracture is fine sandy loam, sandy loam, loam, very fine sandy loam or silt loam and average less than 50 percent fine sand and coarse sand. It has weak or very weak subangular blocky structure, or the material is massive. It ranges from very friable to firm.

The 2C horizon has hue of 10YR or 2.5Y, value of 3 to 5, and chroma of 2 to 4. Texture ranges from very gravelly loamy fine sand to coarse sand or stratified sand and gravel. It is massive or single grain (fig. 18).

## Chippewa Series

The Chippewa series consists of very deep, poorly drained, nearly level soils on glaciated uplands. These soils formed in compact glacial till deposits derived from underlying siltstone, shale and smaller amounts of sandstone. Slopes range from 0 to 3 percent.

Chippewa soils are in a drainage sequence that includes the moderately well drained Mardin soils, and the somewhat poorly drained Volusia soils. They are

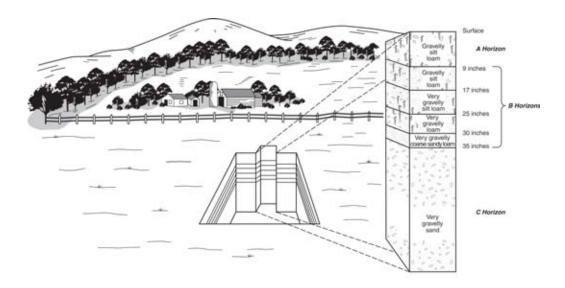


Figure 18.—A typical landscape setting for Chenango gravelly silt loam, 0 to 3 percent slopes. The exaggerated schematic represents the soil layers.

associated on the landscape with well drained Valois soils, moderately well drained Schuyler and Chautauqua soils, somewhat poorly drained Fremont and Erie soils, and very poorly drained Alden soils. They are slightly better drained than the Alden soil, and generally receive less runoff from the adjacent soils. Schuyler, Fremont, and Erie soils have textures similar to those of the Chippewa soils but are better drained. Chippewa soils have a higher content of clay than Valois and Chautauqua soils.

Typical pedon of Chippewa silt loam, 0 to 3 percent slopes; in the town of Lyndon; site located on the north side of Porter Road, 1/4 mile east of junction of Center and Porter Roads.

- A—0 to 6 inches; very dark gray (10YR 3/1) silt loam, gray (10YR 6/1) dry; moderate medium and coarse granular structure; friable; many fine roots; 5 percent rock fragments; strongly acid; clear wavy boundary.
- Eg—6 to 13 inches; gray (10YR 6/1) silt loam; weak fine and medium subangular blocky structure; wet, slightly sticky; common fine roots; common pores; common medium distinct dark yellowish brown (10YR 4/4) and yellowish brown (10YR 5/6) masses of iron accumulation; 5 percent rock fragments; strongly acid; clear wavy boundary.
- Bg—13 to 19 inches; gray (10YR 6/1) silty clay loam; moderate medium subangular blocky structure; wet, sticky; gray (5Y 6/1) silt coats on ped faces; few fine roots in upper part; common medium prominent strong brown (7.5YR 5/6) masses of iron accumulation; 10 percent rock fragments; strongly acid; abrupt wavy boundary.
- Bx—19 to 41 inches; dark grayish brown (10YR 4/2) channery silt loam; moderate very coarse prismatic parting to weak thick platy structure; very firm, brittle; prisms separated by gray (5Y 6/1) silt; common medium distinct olive brown (2.5Y 4/4) and common medium prominent yellowish brown (10YR 5/8) masses of iron accumulation; common medium distinct gray (10YR 5/1) iron depletions; 20 percent rock fragments: strongly acid; gradual wavy boundary.
- C—41 to 72 inches; grayish brown (2.5Y 5/2) channery silt loam; massive; firm; common medium distinct olive brown (2.5Y 4/4) and few prominent strong brown (7.5YR 5/6) masses of iron accumulation; 25 percent rock fragments; moderately acid.

The thickness of the solum ranges from 30 to 56 inches. The depth to bedrock is more than 60 inches. The content of rock fragments ranges, by volume, from 0 to 35 percent above the fragipan, and from 20 to 50 percent in the fragipan and substratum. Reaction ranges from very strongly acid to slightly acid in the surface layer and subsoil above the fragipan, and from strongly acid to neutral in the fragipan, and from moderately acid to moderately alkaline in the substratum.

The A horizons have hues of 10YR and 2.5Y, values of 2 to 4, and chroma of 1 or 2. The texture is loam or silt loam in the fine earth fraction. Some pedons have a mucky modifier.

The Eg horizon has hue of 10YR to 5Y, value of 4 to 6, and chroma of 0 or 1. Texture is loam, silt loam, or light silty clay loam in the fine earth fraction. Structure is weak or moderate, subangular blocky, or platy or the material is massive. Consistence is friable or firm.

The Bg horizon has hue of 10YR to 5Y, value of 3 to 6 and chroma of 1 or 2. Texture of the fine earth fraction is loam, silt loam, clay loam, or light silty clay loam. Structure is very weak to moderate, fine to coarse subangular blocky or granular. Consistence is friable or firm.

The Bx horizon has hues of 10YR to 5Y, value of 3 to 6, and chroma of 1 or 2. Textures range from silty clay loam to fine sandy loam in the fine earth fraction. It has weak to strong, very coarse prismatic structure parting to weak or moderate subangular blocky or platy, or the material within the prisms is massive. Consistence ranges from firm to extremely firm and are brittle.

The C horizon is similar to the Bx horizon in color and texture. The material is massive, or has weak or moderate plate-like divisions. Consistence is firm or very firm.

### Churchville Series

The Churchville series consists of very deep, somewhat poorly drained, nearly level to gently sloping soils on till plains. These soils formed in thin deposits of fine-textured glacial lake sediments underlain by glacial till. Slopes range from 0 to 8 percent.

Churchville soils are associated with Darien, Fremont, Rhinebeck, Niagara, and Canadice soils. They are better drained than Canadice soils and have thinner deposits of clayey sediments than the Rhinebeck soils. They have more clay in the subsoil than Niagara, Darien, and Fremont soils. Also Darien and Fremont soils formed in glacial till and are not overlain by a clayey mantle.

Typical pedon of Churchville silt loam, 3 to 8 percent slopes; in the town of East Otto; 1/4 mile south of Utley Road and Meyers Road, 100 feet east of Utley Road:

- Ap—0 to 8 inches, very dark grayish brown (10YR 3/2) silt loam; moderate medium granular structure; friable; many fine roots; 5 percent rock fragments; slightly acid; abrupt smooth boundary.
- Eg—8 to 14 inches, grayish brown (10YR 5/2) silt loam, weak medium subangular blocky structure; friable; common fine roots; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation within the matrix; common medium distinct light brownish gray (2.5Y 6/2) iron depletions in the matrix; less than 2 percent rock fragments; slightly acid; clear smooth boundary.
- Bt1—14 to 22 inches, yellowish brown (10YR 5/4) silty clay loam; moderate medium subangular blocky structure; firm; common fine roots; common distinct grayish brown (10YR 5/2) clay films in pores and on ped faces; common medium distinct strong brown (7.5YR 5/6) masses of iron accumulation within the matrix; common medium distinct light gray (10YR 7/1) iron depletions in the matrix; neutral; clear wavy boundary.

- Bt2—22 to 37 inches, brown (10YR 4/3) silty clay loam; moderate medium subangular blocky structure; firm; grayish brown (2.5Y 5/2) clay films on ped faces and in pores; common medium distinct strong brown (7.5YR 5/6) masses of iron accumulation within the matrix; common medium distinct light gray (10YR 6/1) iron depletions in the matrix; less than 2 percent rock fragments; neutral; clear smooth boundary.
- 2C1—37 to 55 inches, brown (10YR 4/3) gravelly silt loam; massive; firm; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation within the matrix; common medium distinct light gray (10YR 6/1) iron depletions in the matrix; 15 percent rock fragments; neutral; clear wavy boundary.
- 2C2—55 to 72 inches, brown (10YR 4/3) gravelly silt loam; massive; firm; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation within the matrix; common medium distinct light gray (10YR 6/1) iron depletions in the matrix; 25 percent rock fragments; moderately alkaline; slightly effervescent.

The thickness of the solum and the depth to the 2C horizon range from 20 to 36 inches. The depth to bedrock is more than 60 inches. The content of rock fragments ranges, by volume, from 0 to 10 percent in the solum, and from 10 to 35 percent in the substratum. Reaction is moderately acid to neutral in the surface layer and subsurface layer, slightly acid to slightly alkaline in the subsoil, and slightly alkaline to moderately alkaline in the substratum.

The Ap horizon has hue 7.5YR or 10YR, value of 3 or 4, and chroma of 2 or 3. Texture of the fine earth fraction is silt loam or silty clay loam.

The E horizon has hue of 5YR to 2.5Y, value of 4 to 6, and chroma of 2 to 4. Texture of the fine earth fraction is silt loam, fine sandy loam or silty clay loam. Consistence is friable or firm.

The Bt horizon has hue of 5YR to 2.5Y, value of 3 to 5, and chroma of 2 to 4. It has both high and low chroma redoximorphic features. Texture of the fine earth fraction is clay loam, silty clay loam, or silty clay. Structure is moderate or strong, medium to coarse blocky.

The 2C horizon has colors similar to the Bt horizon. Texture is loam, silt loam, or silty clay loam in the fine earth fraction. Consistence is firm or very firm.

### **Collamer Series**

The Collamer series consists of very deep, moderately well drained, gently sloping to strongly sloping, soils on glacial lake plains. These soils formed in silty, lake-laid deposits. Slopes range from 3 to 15 percent.

Collamer soils are in a drainage sequence that includes the somewhat poorly drained Niagara soils and poorly drained and very poorly drained Canandaigua soils. They are in positions on the landscape similar to those of Rhinebeck, Colonie, Elnora, Tonawanda and Scio soils. They have a higher content of clay than Scio soils, are better drained than Tonawanda soils, and have a lower content of clay than Rhinebeck soils. Collamer soils also have more clay in the subsoil than the sandy Colonie and Elnora soils.

Typical pedon of Collamer silt loam, 8 to 15 percent slopes; in the town of Persia, 1/2 mile south of Van Etten Road and New York Route 62, 1/4 mile east of Van Etten Road:

- Ap—0 to 6 inches; dark grayish brown (10YR 4/2) silt loam; weak fine subangular blocky structure; friable; many fine roots; moderately acid; abrupt smooth boundary.
- E/B—6 to 18 inches; pale brown (10YR 6/3) silt loam; weak fine subangular blocky structure; friable; ped centers of yellowish brown (10YR 5/4) B material; common fine roots; moderately acid; clear wavy boundary.

B/E—18 to 24 inches; brown (10YR 5/3) silt loam; moderate medium subangular blocky structure; friable; pale brown (10YR 6/3) E material on ped faces; common fine roots; moderately acid; clear wavy boundary.

- Bt1—24 to 31 inches; brown (10YR 5/3) silty clay loam; moderate medium subangular blocky structure; firm; few fine roots; distinct clay flows on surfaces along pores; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation and grayish brown (10YR 5/2) iron depletions; moderately acid; clear wavy boundary.
- Bt2—31 to 45 inches; brown (10YR 5/3) silty clay loam; moderate medium subangular blocky structure; firm; few fine roots; distinct clay flows on surfaces along pores and on all faces of peds; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation and grayish brown (10YR 5/2) iron depletions; slightly acid; clear smooth boundary.
- C—45 to 72 inches; brown (10YR 4/3) silt loam with thin lenses of silt; massive; firm; moderately alkaline; strongly effervescent.

The thickness of the solum ranges from 24 to 48 inches. The depth to bedrock is more than 60 inches. The depth to carbonates ranges from 20 to 72 inches. Rock fragments commonly do not occur in the profile, but in some pedons they make up as much as 5 percent of the profile. Reaction ranges from strongly acid to neutral in the Ap, E/B, and B/E horizons, from moderately acid to slightly alkaline in the Bt horizon, and from slightly acid to moderately alkaline in the C horizon.

The Ap has a hue of 10YR or 7.5YR, values of 3 to 5, and chroma of 2 or 3. The texture is fine sandy loam, very fine sandy loam, or silt loam.

The E horizon, if it occurs, has hue of 5YR to 2.5Y, value of 5 or 6, and chroma of 2 to 4. The texture is fine sandy loam or silt loam. The horizon has weak, platy or subangular blocky structure. Consistence ranges from very friable to firm.

The E/B and B/E horizons have properties on ped exteriors that are similar to those of the E horizon. Ped interiors have hue of 5YR to 2.5Y, value of 4 or 5, and chroma of 3 or 4. The texture is silt loam or loam; however, the loam occurs only in the E part of the horizon. Structure is weak or moderate, subangular blocky. Consistence is friable or very friable.

The Bt horizon has hue of 5YR to 2.5Y, value of 4 or 5, and chroma of 3 or 4. It is silt loam or silty clay loam. It has few to many, faint to distinct redoximorphic features. Structure is weak or moderate, subangular blocky, angular blocky or prismatic. Consistence is friable or firm.

The C horizon has hue of 5YR to 2.5Y, value of 4 or 5, and chroma of 2 to 4. The texture ranges from silty clay loam to very fine sand or stratified silt and very fine sand.

### **Colonie Series**

The Colonie series consists of very deep, well drained, nearly level to strongly sloping soils that formed in lake-laid or windblown deposits dominated by fine sands. These soils are on remnant beaches, sandbars, deltas of glacial lakes, or on windblown dunes. Slopes range from 0 to 15 percent.

Colonie soils are in a drainage sequence that includes the moderately well drained Elnora soils, the somewhat poorly drained Minoa soils, and the poorly drained Lamson soils. They are in positions on the landscape similar to those of Chenango, Niagara, and Collamer soils. They do not have the fine-silty subsoil that is typical of Niagara and Collamer soils, and they do not have the rock fragment content that is characteristic of Chenango soils.

Typical pedon of Colonie fine sandy loam, 0 to 3 percent slopes; in the town of Olean; 400 feet south of East River Road, 1.5 miles east of New York Route 16 and East River Road in a sand and gravel pit:

- Ap—0 to 9 inches; dark grayish brown (10YR 4/2) fine sandy loam; weak medium granular structure; very friable; many fine roots; slightly acid; abrupt smooth boundary.
- E1—9 to 16 inches; strong brown (7.5YR 5/6) loamy fine sand; weak fine subangular blocky structure; very friable; common fine roots; slightly acid; clear smooth boundary.
- E2—16 to 32 inches; brown (7.5YR 5/4) loamy fine sand; weak fine granular structure; very friable; few fine roots; moderately acid; clear wavy boundary.
- E and Bt—32 to 47 inches; dark yellowish brown (10YR 4/4) loamy fine sand; weak fine granular structure; very friable; Bt material consists of few 1/4 to 2 inch brown (10YR 4/3) fine sandy loam lamellae and oval pockets up to 3 inches thick; silt and some clay bridging; strongly acid; clear wavy boundary.
- C1—47 to 51 inches; brown (7.5YR 4/4) loamy fine sand; massive; loose; 5 percent rock fragments; moderately acid; clear wavy boundary.
- C2-51 to 72 inches; brown (7.5YR 4/4) fine sand; massive; loose; moderately acid.

The thickness of the solum ranges from 40 to 75 inches. The depth to bedrock is more than 6 feet. Rock fragments commonly do not occur in the profile, but in some pedons they make up as much as 5 percent of the profile. Reaction ranges from very strongly acid to slightly acid within the solum and from moderately acid to neutral in the substratum.

The Ap has hues of 10YR or 7.5YR, values of 3 to 5, and chroma of 2 or 3. The texture is fine sand, loamy fine sand, or very fine sandy loam.

The E horizon has hue of 5YR to 2.5Y, values of 4 to 6, and chroma of 3 to 8. The texture is loamy fine sand or fine sand. The material is massive, or has fine or very fine granular structure. Consistence is loose or very friable.

The E and Bt horizon has hue of 5YR to 2.5Y, values of 4 tho 6, and chroma of 3 to 6. The texture is loamy fine sand or fine sand. The material is massive, or fine or very fine granular structure. Consistence is loose or very friable. The horizon contains lamellae 1/4 inch to 3 inches thick and is friable to firm at a depth of 14 to 24 inches.

The C horizon has hue of 7.5YR to 2.5Y, value of 4 to 6, and chroma of 2 to 4. The texture is fine sand or loamy fine sand. The material is massive or single grained. Consistence is loose or very friable.

## **Dalton Series**

The Dalton series consists of very deep, somewhat poorly drained, nearly level to gently sloping soils that formed in a silty mantle overlying firm glacial till. These soils are on the lower slopes of valleys and on till plains. Slopes range from 0 to 8 percent.

Dalton soils are in a drainage sequence that includes the moderately well drained Canaseraga soils. They are associated on the landscape with Busti, Fremont, Erie and Tonawanda soils. They have a fragipan that is not present in Busti and Fremont soils. They have a mantle of silty material that is not present in Erie soils. They have rock fragments in the lower subsoil and substratum which are not present in Tonawanda soils.

Typical pedon of Dalton silt loam, 0 to 3 percent slopes; in the town of Farmersville; along County Route 21 about 0.3 mile east of Laidlaw Road:

- Ap—0 to 9 inches; very dark grayish brown (10YR 3/2) silt loam; moderate fine granular structure; very friable; many fine and medium roots; strongly acid; clear smooth boundary.
- Eg—9 to 17 inches; light brownish gray (2.5Y 6/2) silt loam; weak medium platy structure; friable; common fine roots; common pores; many medium prominent strong brown (7.5YR 5/8) and distinct olive brown (2.5Y 4/4) masses of iron accumulation; strongly acid; abrupt wavy boundary.

Bx1—17 to 29 inches; olive brown (2.5Y 4/3) silt loam; strong very coarse prismatic structure; prisms separated by gray (10YR 6/1) silt; firm, brittle; few roots on prism faces; few pores; common fine distinct grayish brown (10YR 5/2) iron depletions and brown (7.5YR 4/4) masses of iron accumulation; 5 percent rock fragments, consisting mainly of gravel; moderately acid; clear smooth boundary.

- 2Bx2—29 to 50 inches; brown (10YR 4/3) gravelly silt loam; moderate very coarse prismatic structure; prisms separated by gray (10YR 6/1) silt; firm, brittle; few pores; common fine distinct yellowish brown (10YR 5/6) masses of iron accumulation; common fine distinct gray (10YR 5/1) iron depletions; 25 percent rock fragments; moderately acid; gradual wavy boundary.
- 2C—50 to 72 inches; grayish brown (10YR 5/2) gravelly loam; weak very thick plate-like divisions; firm; common fine distinct yellowish brown (10YR 5/6) masses of iron accumulation; 20 percent rock fragments; slightly acid.

The thickness of the solum ranges from 40 to 60 inches. The depth to bedrock is more than 60 inches. The thickness of the silty mantle ranges from 15 to 36 inches. The depth to the top of the fragipan ranges from 12 to 22 inches. The content of rock fragments, consisting mainly of channers and gravel, ranges by volume, from 0 to 5 percent in the silt mantle, and from 15 to 40 percent in the 2Bx and 2C horizons. Reaction ranges from very strongly acid to moderately acid in the surface layer and subsurface layer, from strongly acid to moderately acid in the Bx horizon, from moderately acid to neutral in the 2Bx horizon, and slightly acid to neutral in the 2C horizon.

The Ap horizon has a hue of 10YR or 2.5Y, value of 3 or 4, and chroma of 1 to 3. The texture is silt loam or very fine sandy loam.

The Eg horizon has hue of 7.5YR to 2.5Y, value of 5 or 6, and chroma of 1 to 3. The texture is silt loam or very fine sandy loam. Structure is weak, fine to medium, platy or subangular blocky. This horizon has common to many, medium and coarse, distinct or prominent, high and low chroma redoximorphic features. Consistence ranges from very friable to firm.

The Bx horizon has hue of 10YR or 2.5Y, value of 3 to 5, and chroma of 1 to 3. The texture is silt loam or very fine sandy loam. Structure is strong coarse prismatic or the material is massive. Consistence is firm or very firm.

The 2Bx horizon has hue of 10YR to 5Y, value of 4 or 5, and chroma of 2 or 3. The texture in the fine earth fraction is silt loam or loam. Structure is moderate or strong, very coarse prismatic, or the material is massive. Consistence is firm or very firm.

The 2C horizon has hue of 10YR to 5Y, value of 4 or 5, and chroma of 2 to 4. The texture in the fine earth fraction is silt loam or loam. The material is massive, or has weak to moderate plate-like divisions. Consistence is firm to very firm.

### **Darien Series**

The Darien series consists of very deep, somewhat poorly drained, nearly level to strongly sloping soils, mainly on till plains and in some valleys. These soils formed in glacial till derived mainly from soft shale. Slopes range from 0 to 15 percent.

Darien soils are associated with Fremont, Busti, Volusia, Erie, and Orpark soils. They have a higher content of clay than the Busti soils and are deeper over bedrock than Orpark soils. They have a layer of accumulated clay in the subsoil that is not present in Fremont and Volusia soils. They do not have the fragipan that is typical of Volusia and Erie soils.

Typical pedon of Darien silt loam, 8 to 15 percent slopes; in the Town of East Otto; on the south side of Meyers Road, near loop with Fowler Rd.

Ap—0 to 7 inches; dark grayish brown (10YR 4/2) silt loam; light brownish gray (10YR 6/2) dry; moderate medium granular structure; friable; many fine roots; 5 percent rock fragments; slightly acid; abrupt smooth boundary.

- E—7 to 14 inches; pale olive (5Y 6/3) silt loam; weak fine subangular blocky structure; friable; many fine roots; many fine pores; many medium distinct light brownish gray (2.5Y 6/2) iron depletions and olive brown (2.5Y 4/4) masses of iron accumulation; 5 percent rock fragments; slightly acid; clear wavy boundary.
- Btg—14 to 23 inches; dark grayish brown (2.5Y 4/2) silt loam; moderate medium subangular blocky structure; firm; common fine roots; clay films in many pores and gray (2.5Y 5/1) silt coats on some vertical ped faces; common medium distinct light olive brown (2.5Y 5/6) masses of iron accumulation; 10 percent rock fragments; slightly acid; gradual wavy boundary.
- Bt—23 to 38 inches; olive brown (2.5Y 4/4) silty clay loam; moderate medium and coarse subangular blocky structure; firm; few fine roots; few to common pores; gray (10YR 5/1) clay films on all faces of peds and on surfaces along pores; common medium distinct light brownish gray (2.5Y 6/2) iron depletions; 10 percent rock fragments; neutral; clear wavy boundary.
- C—38 to 72 inches; grayish brown (10YR 5/2) gravelly silt loam; weak thick plate-like divisions; firm; plastic; few pores; gray (5Y 5/1) thin silt and clay films; common brown distinct(10YR 4/3) and (10YR 5/3) masses of iron accumulation; 15 percent rock fragments; strongly effervescent, moderately alkaline.

The thickness of the solum ranges from 30 to 45 inches. The depth to bedrock is more than 60 inches. The depth to carbonates ranges from 25 to 48 inches. The content of rock fragments ranges, by volume, from 2 to 35 percent in the surface layer, subsurface layer, and subsoil, and from 10 to 60 percent in the substratum. Reaction ranges from strongly acid to neutral in the surface layer, subsurface and subsoil, and from slightly acid to moderately alkaline in the C horizon.

The Ap horizon has hue of 10YR or 2.5Y, value of 2 to 4, and chroma of 1 to 4. The texture in the fine earth fraction is loam, silt loam or silty clay loam.

The E horizon has hue of 10YR to 5Y, value of 5 or 6, and chroma of 1 to 3. The texture is silt loam, loam or silty clay loam in the fine earth fraction. Structure is weak subangular blocky or platy. Consistence is friable or firm.

The Bt horizon has hue of 10YR to 5Y, value of 3 to 5, and chroma of 2 to 4. The texture is silt loam, silty clay loam or clay loam in the fine earth fraction. Structure is weak to moderate, medium or coarse subangular or angular blocky. Consistence is friable or firm.

The C horizon has color and textures similar to those of the Bt horizon. The material is massive or has plate like divisions. Consistence is firm or very firm.

### **Dunkirk Series**

The Dunkirk series consists of very deep, well drained, moderately steep to steep soils on dissected glacial lake plains. These soils formed in lake-laid sediments dominated by silts and clays. Slopes range from 25 to 35 percent.

Dunkirk soils are in a drainage sequence that includes the moderately well drained Collamer soils, the somewhat poorly drained Niagara soils, and the poorly drained and very poorly drained Canandaigua soils. They commonly are associated with Rhinebeck, Unadilla, Colonie, and Valois soils. Dunkirk series are better drained and contain less clay than Rhinebeck soils. They contain more clay than Unadilla soils and less sand than Colonie soils. They contain fewer rock fragments than Valois soils, which formed in glacial till.

Typical pedon of Dunkirk silt loam, 15 to 25 percent slopes; in town of Persia; 2 miles south of Peter Road and Broadway Road, 1/3 mile west of Peter Road, road bank of logging road:

Ap—0 to 4 inches; dark grayish brown (10YR 4/2) silt loam; moderate medium granular structure; friable; many fine roots; moderately acid; abrupt smooth boundary.

EB—4 to 14 inches; yellowish brown (10YR 5/4) silt loam; weak fine subangular blocky structure; friable; common fine roots; slightly acid; clear wavy boundary.

- B/E—14 to 26 inches; brown (10YR 5/3) silt loam; moderate medium subangular blocky structure; friable; common fine roots; yellowish brown (10YR 5/4) material on peds; light brownish gray (10YR 6/2) iron depletions; moderately acid; clear smooth boundary.
- Bt1—26 to 34 inches; brown (10YR 4/3) silty clay loam; moderate medium subangular blocky structure; friable; few fine roots; common thin clay films on all faces of peds and on surfaces along pores; slightly acid; clear wavy boundary.
- Bt2—34 to 48 inches; brown (10YR 4/3) silty clay loam; moderate medium subangular blocky structure; friable; few thin clay films on all faces of peds and on surfaces along pores; common medium distinct yellowish brown (10YR 5/6) masses of accumulations and grayish brown (10YR 5/2) iron depletions; neutral; clear smooth boundary.
- C1—48 to 54 inches; brown (10YR 4/3) silt loam; thin plate-like divisions; firm; slightly alkaline; clear wavy boundary.
- C2—54 to 72 inches; brown (10YR 4/3) silt loam; massive; firm; slightly alkaline.

The thickness of the solum ranges from 20 to 48 inches. The depth to bedrock is more than 60 inches. The depth to carbonates is 20 to 54 inches. Rock fragments commonly are not present in the profile, but in some pedons they make up as much as 5 percent of the profile. Reaction ranges from strongly acid to slightly acid in the surface layer, from strongly acid to neutral in the subsurface layer, from moderately acid to slightly alkaline in the subsoil, and from slightly acid to moderately alkaline in the substratum.

The Ap or A horizon has hue of 7.5YR to 2.5Y, value of 3 to 5, and chroma of 2 to 4. The texture is silt loam, fine sandy loam, or very fine sandy loam.

The EB horizon has hue of 7.5YR to 2.5Y, value of 5 or 6, and chroma of 3 to 5. The texture is silt loam, very fine sandy loam or fine sandy loam. Structure is weak or moderate, fine or medium, subangular blocky. Consistence is very friable or friable.

The B portion of the B/E horizon has colors and textures similar to the underlying Bt horizon, while the E portion of the horizon has colors and textures similar to the overlying EB horizon.

The Bt horizon has hue of 5YR through 2.5Y, value of 3 through 5, and chroma of 2 through 4. The texture is silt loam, silty clay loam, or very fine sandy loam. Structure is weak to strong, medium or coarse, angular or subangular blocky. Consistence is friable or firm.

The C horizon has colors similar to those of the Bt horizon. The texture is silt loam, very fine sand, silt or silty clay loam. The horizon is massive or varved. Consistence is friable or firm.

### **Eldred Series**

The Eldred series consists of very deep, moderately well drained, gently sloping to moderately steep soils on foot slopes, side slopes, and benches of the unglaciated plateau. These soils formed in residuum from interbedded shale, siltstone, and fine grained sandstone, at elevations above 1,800 feet. Slopes range from 3 to 25 percent.

Eldred soils are closely associated with well drained Carrollton, Ceres, and Kinzua soils, moderately well drained Onoville soils, and somewhat poorly drained Ivory and Shongo soils. Eldred soils are deeper to bedrock than Carrollton and Ceres soils, and they lack the fragipan layer that is typical of Onoville and Shongo soils. Kinzua soils are better drained, and Ivory soils have a higher clay content than the Eldred soils.

Typical pedon of Eldred silt loam, 3 to 8 percent slope; in the town of Humphrey; 600 feet south of Fire Lane Road and Chapman Road, 50 feet west of Chapman Road:

- A—0 to 3 inch, very dark gray, (10YR 3/1) silt loam; moderate fine granular structure; friable; many fine roots; 10 percent rock fragments; strongly acid; clear smooth boundary.
- Bw1—3 to 9 inches, brown (10YR 5/3) silt loam; weak fine subangular blocky structure; friable; common fine roots; 10 percent rock fragments; strongly acid; clear wavy boundary.
- Bw2—9 to 14 inches, pale brown (10YR 6/3) silty clay loam; weak medium subangular blocky structure; friable; common fine roots; few medium distinct brownish yellow (10YR 6/6) masses of iron accumulation in the matrix; 10 percent rock fragments; strongly acid; clear wavy boundary.
- Bt1—14 to 22 inches, yellowish brown (10YR 5/4) channery silty clay loam; moderate medium subangular blocky structure; firm; few fine roots; few thin clay films on ped faces and in pores; common medium distinct brownish yellow (10YR 6/6) and strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; 15 percent rock fragments; strongly acid; clear wavy boundary.
- Bt2—22 to 42 inches, light olive brown (2.5Y 5/4) channery silty clay loam; moderate medium subangular blocky structure; firm; few fine roots; few thin clay films on ped faces and in pores; common manganese stains; common medium prominent light brownish gray (10YR 6/2) iron depletions and yellowish brown (10YR 5/6) masses of iron accumulation; 25 percent rock fragments; strongly acid; abrupt wavy boundary.
- C—42 to 72 inches, yellowish brown (10YR 5/4) channery silty clay loam; massive; firm; common medium distinct light brownish gray (10YR 6/2) iron depletions and yellowish brown (10YR 5/8) masses of iron accumulation; 20 percent rock fragments; strongly acid.

The thickness of the solum ranges from 34 to 60 inches. The depth to bedrock is more than 72 inches. The content of rock fragments, dominantly channers and flagstones, ranges, by volume, from 5 to 35 percent in the solum, and from 10 to 60 percent in the substratum. Reaction ranges from strongly acid to extremely acid throughout the soil.

The A horizon has a hue of 7.5YR or 10YR, value of 3 or 4, and chroma of 1 to 4. The texture is silt loam or silty clay loam of the fine earth fraction.

The Bw horizon has hue of 7.5YR to 2.5Y, value of 4 to 6, and chroma of 3 to 6. The texture is loam, silt loam, or silty clay loam of the fine earth fraction. Consistence is friable or very friable.

The Bt horizon has hue of 7.5YR to 5Y, value of 4 to 6, and chroma of 2 to 8. The texture of the fine earth fraction is silt loam, silty clay loam, or clay loam. The Bt horizon has redoximorphic depletions and concentrations within the upper 24 inches of the argillic horizon. Structure is subangular or angular blocky. Consistence is friable or firm.

The C horizon has hue of 7.5YR to 5Y, value of 4 to 6, and chroma of 2 to 6. The texture is loam, silt loam, silty clay loam, and clay loam of the fine earth fraction. Structure is massive. Consistence is firm or very firm.

## Elko Series

The Elko series consists of very deep, moderately well drained, gently sloping to strongly sloping soils formed in weathered residuum from interbedded siltstone, fine grained sandstone and shale. These soils are in areas of broad ridgetops, upland depressions, and upper side slopes of unglaciated plateaus above elevations of 1,800 feet. Slopes range from 3 to 15 percent.

Elko soils are associated with Carrollton, Frewsburg, Eldred, Ceres, and Flatiron soils. They are deeper over bedrock than Carrollton or Frewsburg soils, and have a

fragipan that is not present in Eldred, Ceres, and Flatiron soils. They have more clay in the subsoil than Flatiron soils, and do not have the red colors typical of Ceres soils.

Typical pedon of Elko silt loam, on a 3 to 8 percent slope; in the town of Red House; in Allegany State Park; 100 feet south of Allegany State Park Route 3, and 1,500 feet southwest of junction of Allegany State Park Route 3 and Allegany State Park Route 2:

- A—0 to 3 inches; very dark gray (7.5YR 3/1), gray (10YR 5/1) dry silt loam; moderate fine and medium granular structure; very friable; many fine and medium roots; 10 percent rock fragments; extremely acid; clear wavy boundary (1 to 3 inches thick).
- E—3 to 6 inches; grayish brown (10YR 5/2) loam; weak fine and medium subangular blocky structure; very friable; many fine and few coarse roots; 10 percent rock fragments; extremely acid; clear wavy boundary (0 to 4 inches thick).
- Bw—6 to 19 inches; strong brown (7.5YR 5/6) channery silt loam; weak fine and medium subangular blocky structure; very friable; many fine and medium roots; 15 percent rock fragments; extremely acid; clear wavy boundary (0 to 13 inches thick).
- Bt—19 to 26 inches; yellowish brown (10YR 5/4) channery loam; weak fine and medium subangular blocky structure; friable; few fine roots; few thin discontinuous clay films on ped faces and in pores; common prominent strong brown (7.5YR 5/6) iron masses and common medium and coarse distinct pale brown (10YR 6/3) and light brownish gray (10YR 6/2) iron depletions; 15 percent rock fragments; extremely acid; clear wavy boundary(8 to 12 inches thick).
- Btx1—26 to 42 inches; yellowish brown (10YR 5/4) channery silt loam; strong very coarse prismatic structure parting to weak medium subangular blocky structure; firm and brittle; prisms are 10 to 20 inches across with gray (10YR 6/1) faces and strong brown (7.5YR 5/8) borders, streaks are 1/2 to 1 inch wide; few fine roots along prism faces; common distinct discontinuous clay films on ped faces and in pores; common medium prominent strong brown (7.5YR 5/6) iron masses and common medium and course distinct light pale brown (10YR 6/3) and light brownish gray (10YR 6/2) iron depletions; 30 percent rock fragments; extremely acid; gradual wavy boundary.
- Btx2—42 to 64 inches; brown (7.5YR 5/4) very channery loam; strong very coarse prismatic structure parting to weak medium subangular blocky structure; very firm and brittle; prisms are 10 to 20 inches across with gray (10YR 6/1) faces and strong brown (7.5YR 5/8) borders, streaks are 1/4 to 3/4 inch wide; common distinct discontinuous clay films on ped faces and in pores; common medium prominent strong brown (7.5YR 5/6) iron masses and common medium and distinct light brownish gray (10YR 6/2) iron depletions; 35 percent rock fragments; extremely acid; clear wavy boundary (combined thickness of the Btx horizon is 30 to 48 inches thick).
- C—64 to 72 inches; yellowish brown (10YR 5/4) very channery loam; massive; firm; common medium prominent strong brown (7.5YR 5/8) iron masses and common medium and coarse prominent gray (10YR 6/1) iron depletions; 60 percent rock fragments; extremely acid; abrupt smooth boundary (10 to 20 inches thick).

Solum thickness ranges from 35 to 75 inches. Depth to bedrock is greater than 40 inches but commonly is within a depth of 80 inches. Rock fragments, dominantly channers and flagstones, range from 5 to 35 percent by volume in the surface layer, from 5 to 45 percent in the subsoil, and from 15 to 70 percent in the substratum. Reaction ranges from extremely acid through strongly acid throughout the soil unless limed. The A or Ap horizon has a hue of 7.5YR or 10YR, value of 3 or 4 and chroma of 1 to 4. Texture of the fine-earth fraction is silt loam, loam or sandy loam.

The E horizon, where present, has hue of 7.5YR to 2.5Y, value of 4 or 6, and chroma of 1 to 4. Texture is silt loam, loam or sandy loam in the fine-earth fraction.

Structure is weak or moderate subangular blocky or granular. Consistence is very friable or friable.

The Bw horizon, where present, has hue of 7.5YR to 2.5Y, value of 4 to 6, and chroma of 3 to 8. Texture is silt loam, silty clay loam, or loam in the fine-earth fraction. Structure is weak or moderate subangular blocky or granular. Consistence is very friable or friable

The Bt horizon has hue of 7.5YR to 5Y, value of 4 to 6, and chroma of 3 to 6, with low and high chroma redoximorphic features in the upper 10 inches of the horizon. Texture includes silt loam, loam, silty clay loam, and subhorizons of silty clay in the fine-earth fraction. Structure is subangular blocky or prismatic. Consistence is friable or firm.

The Btx horizon has hue of 7.5YR to 5Y, value of 4 to 7 and chroma of 2 to 8. Texture is loam, silt loam, sandy loam, silty clay loam or clay loam in the fine-earth fraction. Structure is prismatic and/or blocky. Some subhorizons have weak platy structure. Consistence is firm or very firm. Some pedons have a BC horizon that has color similar to the Btx horizon and texture similar to the C horizon. Structure is prismatic or platy, or the material is massive. Consistence is firm or very firm.

The C, CB or BC horizon has hue of 7.5YR to 5Y, value of 3 to 6, and chroma of 2 to 6. Texture of the fine-earth fraction is loam, silt loam, sandy loam, silty clay loam and clay loam. Consistence is friable or firm. A Cr horizon is present in some pedons.

#### Elnora Series

The Elnora Series consists of very deep, moderately well drained, nearly level to gently sloping soils that formed in lake-laid or windblown deposits of fine sand. These soils are on remnant sandbars and beaches of glacial lake plains. Slopes range from 0 to 8 percent.

Elnora soils are in a drainage sequence that includes the well drained Colonie soils, somewhat poorly drained Minoa soils, and poorly drained Lamson soils. Elnora soils are in landscape positions similar to those of Castile, Scio, Niagara, and Collamer soils. They are coarser textured than Scio soils, contain less clay than Collamer and Niagara soils, and contain fewer rock fragments than Castile soils.

Typical pedon of Elnora fine sandy loam, 0 to 3 percent slopes; in the town of Leon; 3 miles southeast of South Dayton, 1/2 mile south of Xura Road and Chicken Road, 50 feet west of Chicken Road:

- Ap—0 to 7 inches; very dark grayish brown (10YR 3/2) fine sandy loam; weak medium granular structure; friable; many fine roots; slightly acid; abrupt smooth boundary.
- Bw1—7 to 16 inches; strong brown (7.5YR 5/6) loamy fine sand; weak fine granular structure; friable; common fine roots; slightly acid; clear wavy boundary.
- Bw2—16 to 27 inches; yellowish brown (10YR 5/4) loamy fine sand; weak fine granular structure; friable; common fine roots; common medium distinct strong brown (7.5YR 5/6) masses of iron accumulation; slightly acid; clear wavy boundary.
- C1—27 to 30 inches; brown (10YR 5/3) fine sand; massive; loose; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation; 10 percent rock fragments; moderately acid; clear wavy boundary.
- C2—30 to 72 inches; grayish brown (10YR 5/2) fine sand; massive; loose; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation; 2 percent rock fragments; moderately acid.

The thickness of the solum ranges from 6 to 52 inches. The depth to contrasting material is greater than 72 inches. The depth to bedrock is greater than 60 inches. The content of rock fragments commonly ranges from 0 to 5 percent throughout the

profile, but in the substratum, it may be as much as 15 percent. Reaction ranges from extremely acid to slightly acid in the surface layer and subsoil, and from strongly acid to neutral in the substratum.

The Ap horizon has hue of 10YR or 2.5YR, value of 3 to 5, and chroma of 2 or 3. The texture is loamy fine sand or fine sandy loam.

The Bw horizon has hue of 5YR to 5Y, value of 4 to 6, and chroma of 3 to 8. The texture is loamy fine sand or fine sand. Structure is weak fine granular, subangular blocky or platy. Consistence is very friable or friable.

The C horizon has hue of 5YR to 5Y, value of 3 to 5, and chroma of 1 to 4. The texture is loamy fine sand or fine sand. This horizon is massive or single grained. Consistence is loose to friable.

### **Erie Series**

The Erie series consists of very deep, somewhat poorly drained, nearly level to strongly sloping soils on till plains and on the upland plateaus. These soils formed in glacial till derived mainly from siltstone or sandstone, and from shale and limestone. Slopes range from 0 to 15 percent.

The Erie soils are in a drainage sequence that includes the moderately well drained Langford soils. They are associated with Fremont, Darien, Busti, and Ashville soils. They are better drained than the poorly drained Ashville soils. They have a finer textured subsoil than the Busti soils. Fremont, Darien and Busti soils do not have a fragipan.

Typical pedon of Erie channery silt loam, 3 to 8 percent slopes; in the town of Freedom; on east side of Galen Hill Road, just south of Cross Road:

- Ap—0 to 9 inches; very dark grayish brown (10YR 3/2) channery silt loam, light brownish gray (10YR 6/2) dry; weak medium granular structure; friable; many fine roots; 15 percent rock fragments; slightly acid; abrupt smooth boundary.
- Eg—9 to 14 inches; light brownish gray (10YR 6/2) silt loam; weak fine subangular blocky structure; friable; common fine roots; common pores; many medium distinct brown (7.5YR 5/4) and yellowish brown (10YR 5/6) masses of iron accumulation; 10 percent rock fragments; moderately acid; abrupt wavy boundary.
- Bx1—14 to 28 inches; brown (10YR 4/3) channery silt loam; moderate coarse prismatic parting to weak medium subangular blocky structure; firm, brittle; few pores; few clay films on vertical faces of peds; prisms separated by vertical seams of gray (10YR 6/1) silt; many medium distinct strong brown (7.5YR 5/6) masses of iron accumulation; many medium distinct light brownish gray (2.5Y 6/2) iron depletions; 15 percent rock fragments; slightly acid; clear wavy boundary.
- Bx2—28 to 45 inches; dark grayish brown (2.5Y 4/2) channery silt loam; weak, very coarse prismatic structure; firm, brittle; few pores; few clay films in pockets of silty clay loam material; prisms separated by seams of gray (5Y 6/1) silt; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation; 20 percent rock fragments; neutral; clear wavy boundary.
- C—45 to 72 inches; grayish brown (2.5Y 5/2) channery silt loam; massive; firm; few fine distinct yellowish brown (10YR 5/6) masses of iron accumulation; 25 percent rock fragments; moderately effervescent; moderately alkaline.

The thickness of the solum ranges from 32 to 58 inches. The depth to bedrock is more than 60 inches. The depth to carbonates ranges from 35 to 65 inches. The depth to the top of the fragipan ranges from 10 to 21 inches. The content of rock fragments (mostly channers) ranges, by volume, from 5 to 35 percent above the fragipan, and from 15 to 60 percent in the fragipan and substratum. The reaction ranges from strongly acid to slightly acid in the surface and subsurface horizons, from

moderately acid to slightly alkaline in the fragipan, and from slightly acid to moderately alkaline in the substratum.

The Ap horizon has hue of 10YR or 2.5Y, value of 3 or 4, chroma of 2 or 3. The texture is silt loam or loam in the fine earth fraction.

The Eg horizon has hue of 7.5YR to 5Y, value of 5 or 6, and chroma of 2 or 3. The texture is loam, silt loam or silty clay loam in the fine earth fraction. It has subangular blocky or platy structure. Consistence is friable or firm.

The Bx horizon has hue of 7.5YR to 5Y, value of 4 to 6, and chroma of 2 to 4. The texture is loam, silt loam, or silty clay loam in the fine earth fraction. Consistence is firm or very firm, and the material is brittle.

The C horizon has hue of 7.5YR to 5Y, values of 3 to 5, and chroma of 2 to 4. The texture is loam, silt loam or silty clay loam in the fine earth fraction. The material is massive or has plate like divisions. Consistence is firm or very firm.

### Flatiron Series

The Flatiron series consists of very deep, well drained, gently sloping to steep soils formed in weathered residuum from sandstone and sandstone conglomerate. These soils are in areas of broad ridgetops and upper hillsides of the unglaciated plateau above elevations of 2,000 feet. Slopes range from 3 to 35 percent.

Flatiron soils are associated with Carrollton, Mandy, Knapp Creek, Eldred, Ceres and Elko soils. They are deeper over bedrock, and contain less clay in the subsoil than Carrollton or Mandy soils. They lack the fragipan layer that is present in Elko soils. They have a higher sand content than Eldred or Ceres soils, and do not have the red colors that are typical of Ceres soils. They do not have the high gravel content that is typical of Knapp Creek soils.

Typical pedon of Flatiron loamy fine sand, 15 to 25 percent slopes, extremely bouldery; in the town of Olean; 1,400 feet north of Two Mile Road and New York Route 16, 1,800 feet southeast of New York Route 16:

- Oe—0 to 1 inch; black (10YR 2/1) partially decomposed leaves; abrupt smooth boundary.
- E—1 to 2 inches; pinkish gray (7/5YR 7/2) loamy fine sand; single grain, loose; many fine roots; 10 percent rock fragments of subrounded quartz pebbles; very strongly acid; abrupt smooth boundary.
- Bw1—2 to 25 inches; brown (7.5YR 5/4) gravelly fine sandy loam; weak coarse subangular blocky structure; very friable; many fine and coarse roots; 15 percent rock fragments of subrounded quartz pebbles; very strongly acid; gradual wavy boundary.
- Bw2—25 to 36 inches; strong brown (7.5YR 5/6) gravelly loamy fine sand; weak coarse subangular blocky structure; very friable; common medium and coarse roots; 30 percent rock fragments of subrounded quartz pebbles and 2 percent sandstone rock fragments; very strongly acid; abrupt smooth boundary.
- C1—36 to 47 inches; light yellowish brown (10YR 6/4) very gravelly sandy loam; massive; firm; common medium distinct strong brown (7.5YR 5/8) masses of iron accumulations; light gray (10YR 7/2) silt faces along rock fragments; 50 percent rock fragments mostly subrounded quartz pebbles; very strongly acid; clear wavy boundary.
- C2—47 to 60 inches; strong brown (7.5YR 5/6) silty clay loam; massive; firm; light gray (10YR 7/2) faces on rock fragments; common black (10YR 2/1) manganese stains; 10 percent rock fragments (shale); very strongly acid; clear wavy boundary.
- C3—60 to 72 inches; pale brown (10 YR 6/3) gravelly loam; massive; firm; 20 percent rock fragments of quartz pebbles and sandstone; very strongly acid.

The thickness of the solum ranges from 26 to 60 inches. The depth to bedrock is more than 60 inches. The content of rock fragments, dominantly subrounded quartz and sandstone, ranges, by volume, from 5 to 35 percent in individual horizons of the solum, and from 10 to 60 percent in the substratum. Boulders, stones, and channers cover about 5 to 60 percent of the surface in some areas. Reaction ranges from strongly acid to extremely acid throughout the profile.

The O horizon consists of partially decomposed leaves.

The A horizon, where present, has hue of 7.5YR or 10YR, value of 2 to 4, and chroma of 1 to 4. The texture of the fine earth fraction is loamy sand, sandy loam, fine sandy loam or loam, or the gravelly analogs of those textures.

The E horizon has hue of 5YR to 10YR, value of 4 to 7, and chroma of 1 to 4. The texture in the fine earth fraction is loamy sand, loamy fine sand, sandy loam, fine sandy loam, and loam or the gravelly analogs of those textures. Structure is weak, fine or medium granular or it is single grain. Consistence is very friable, friable or loose.

The Bw horizon has hue of 5YR to 10YR, value of 3 to 6, and chroma of 3 to 8. The texture in the fine earth fraction is loamy sand, loamy fine sand, sandy loam, fine sandy loam, and loam or the gravelly analogs of those textures. Structure is weak or moderate, fine to coarse subangular blocky or granular. Consistence is very friable or friable.

The C horizon has hue of 5YR to 2.5Y, value of 3 to 6, and chroma of 3 to 8. The textures in the fine earth fraction ranges from loamy sand to loam, with subhorizons of silty clay loam. Structure is weak subangular blocky, single grain or the material is massive. Consistence is friable or firm.

# **Fluvaquents**

Fluvaquents consist of deep and very deep, somewhat poorly drained to very poorly drained soils that formed in recent alluvial deposits. These soils show little or no profile development. They are adjacent to secondary streams and are subject to frequent flooding. Slopes range from 0 to 3 percent but are mainly less than 2 percent.

Fluvaquents are mapped with Udifluvents. They are near Middlebury, Holderton, Wakeland, Teel, and Wayland soils. They are in positions on the landscape where an adjacent stream frequently shifts the soil deposits from place to place by scouring, cutting and lateral erosion.

Because of the variability of Fluvaquents, a typical pedon is not provided. The solum of these soils generally consists of an A horizon 0 to 12 inches thick. The depth to bedrock ranges from 40 to more than 60 inches. The content of rock fragments consisting of gravel, cobblestones, and flagstones ranges, by volume, from 0 to 70 percent. These soils are very strongly acid to moderately alkaline. The content of organic matter decreases irregularly as depth increases.

The A horizon dominantly has hue of 5YR to 2.5Y, value of 2 or 3, and chroma of 0 to 2. The texture is quite variable. Texture is loamy sand to silty clay loam or the gravelly or very gravelly analogs of the textures within that range. In some areas the surface is stony.

The C horizon has hue of 5YR to 5Y or is neutral in hue. It has value of 3 to 6, and chroma of 0 to 5. It is loamy sand to silty clay or the gravelly, cobbly, or very gravelly analogs of the textures within that range. Some pedons have redoximorphic features. Consistence is friable to loose.

### Franklinville Series

The Franklinville series consists of very deep, well drained, gently sloping to steep, soils on glaciated uplands. These soils formed in glacial till derived from sandstone,

siltstone and shale. They are on upland till plains, hilltops and valley sides above elevations of 1,800 feet. Slopes range from 3 to 35 percent.

They are associated on the landscape with Yorkshire, Salamanca, Ischua, Willdin, and Valois soils. Franklinville soils do not have the fragipan typical of Yorkshire and Willdin soils. They have less clay than Salamanca or Ischua soils and have less gravel in the subsoil than Valois soils. Valois soils are dominantly on landscapes at lower elevations.

Typical pedon of Franklinville channery silt loam, 8 to 15 percent slopes; in the town of Lyndon; at the intersection of Sabo Road and North Center Road:

- A—0 to 3 inches; very dark gray (10YR 3/1) channery silt loam; weak fine granular structure; very friable; many fine roots; 15 percent rock fragments; strongly acid; clear smooth boundary.
- Bw1—3 to 14 inches; strong brown (7.5YR 5/4) channery silt loam; weak medium subangular blocky structure; very friable; few fine roots; 15 percent rock fragments; strongly acid; gradual wavy boundary.
- Bw2—14 to 32 inches; yellowish brown (10YR 5/4) channery silt loam; moderate medium and fine subangular blocky structure; friable; few fine roots; 25 percent rock fragments; strongly acid; gradual smooth boundary.
- BC—32 to 42 inches; dark yellowish brown (10YR 4/4) channery silt loam; weak medium subangular blocky structure; firm; very few roots; 30 percent rock fragments; strongly acid; clear wavy boundary.
- C—42 to 72 inches; brown (10YR 4/3) very channery silt loam; massive; firm; 45 percent rock fragments; strongly acid.

The thickness of the solum ranges from 30 to 50 inches. The depth to bedrock is more than 60 inches. The content of rock fragments ranges, by volume, from 5 to 30 percent in the upper part of the solum, from 15 to 35 percent in the lower part of the solum, and from 20 to 60 percent in the substratum. Reaction ranges from strongly acid to moderately acid in the solum, and from very strongly acid to slightly acid in the substratum.

The A horizon has hue of 10YR or 7.5YR hue, value of 3 or 4, and chroma of 1 to 4. The texture of the fine earth fraction is silt loam or loam.

The Bw horizon has hue of 7.5YR to 2.5Y, value of 4 to 6, and chroma of 3 to 6. The texture is silt loam, loam or fine sandy loam in the fine earth fraction. Structure is weak or moderate, fine to coarse subangular blocky or granular. Consistence is very friable or friable.

The BC horizon, has hue, value, and chroma similar to the B horizon. The texture in the fine earth fraction is fine sandy loam, silt loam, or loam. Structure is weak fine or medium subangular blocky or platy. Consistence is friable or firm.

The C horizon has hue of 10YR or 2.5Y, value of 3 to 5, and chroma of 2 to 4. Texture of the fine earth fraction is sandy loam, fine sandy loam, silt loam or loam. The material is massive or has plate like divisions. Consistence is friable or firm.

#### Fremont Series

The Fremont series consists of very deep, somewhat poorly drained, nearly level to strongly sloping soils on uplands. These soils formed in glacial till deposits derived from shale, siltstone and sandstone. They are on broad hilltops of upland till plains. Slopes range from 0 to 15 percent.

The Fremont soils are in a drainage sequence that includes the moderately well drained Schuyler soils, and the poorly drained Ashville soils. They are associated with Erie, Volusia, Hornell, and Orpark soils. Fremont soils do not have the fragipan that is typical of Erie and Volusia soils. They contain less clay than the Hornell soils. They do

not have bedrock within a depth of 40 inches, which is typical of Hornell and Orpark soils.

Typical pedon of Fremont silt loam, 3 to 8 percent slopes; in the town of Farmersville; 0.3 miles northwest of junction of Pigeon Hill Road and Cutting Road:

- Ap—0 to 9 inches; dark grayish brown (10YR 4/2) silt loam; weak fine granular structure; very friable; many fine roots; 10 percent rock fragments; slightly acid (limed); abrupt smooth boundary.
- Bw1—9 to 16 inches; brown (10YR 5/3) silt loam; moderate medium subangular blocky structure; friable; few fine roots; common medium pores; many medium prominent strong brown (7.5YR 5/6) masses of iron accumulation; gray (N6/0) iron depletions in the matrix; 10 percent rock fragments; moderately acid; clear smooth boundary.
- Bw2—16 to 28 inches; olive brown (2.5Y 4/4) silty clay loam; weak medium subangular blocky within weak coarse prismatic structure; firm; few fine roots in upper part; common fine pores; peds coated with light brownish gray (2.5Y 6/2) silt; many medium prominent yellowish brown (10YR 5/6) masses of iron accumulation within the matrix; many medium prominent gray (N6/0) iron depletions within the matrix; 10 percent rock fragments; strongly acid; clear wavy boundary.
- BC—28 to 39 inches; olive brown (2.5Y 4/4) channery silty clay loam; weak coarse prismatic structure; firm; common medium distinct yellowish brown (10YR 5/4) masses of iron accumulation within the matrix and gray (5Y 5/1) iron depletions within the matrix; 15 percent rock fragments; strongly acid; clear wavy boundary.
- C—39 to 72 inches; dark grayish brown (2.5Y 4/2) channery silt loam; weak thin plate-like divisions; firm; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation within the matrix and gray (5Y 5/1) iron depletions within the matrix; 20 percent rock fragments; strongly acid.

The thickness of the solum ranges from 24 to 40 inches. The depth to bedrock is more than 60 inches. The content of rock fragments ranges, by volume, from 10 to 35 percent in the solum and from 20 to 60 percent in the substratum. Reaction ranges from very strongly acid to moderately acid above a depth of 40 inches and from strongly acid to neutral at depths below 40 inches.

The Ap horizon has hue of 10YR or 2.5Y, value of 3 or 4, and chroma of 2 or 3. The texture is silt loam or silty clay loam in the fine earth fraction.

The Bw horizon has hue of 10YR to 5Y, values of 4 to 6, and chroma of 2 to 4. The texture is silt loam or silty clay loam in the fine earth fraction. Redoximorphic features are common to many, medium and distinct. Structure is weak, medium or coarse prismatic parting to weak or moderate, fine to strong subangular blocky. Consistence is friable or firm.

The BC horizon has colors and textures similar to those of the Bw horizon. Structure is weak, medium, or coarse prismatic, and in some pedons, parting to weak fine to coarse subangular blocky.

The C horizon has hue of 10YR to 5Y, value of 4 to 6, and chroma of 1 to 4. Texture is silt loam or silty clay loam. The material is massive, or has plate-like divisions. Consistence is firm.

# **Frewsburg Series**

The Frewsburg series consists of moderately deep, somewhat poorly drained, gently sloping to strongly sloping soils that formed in weathered residuum of interbedded shale, siltstone, and sandstone. Bedrock is at a depth of 20 to 40 inches. These soils are on hilltops and benches, above elevations of 1,800 feet, where the

topography is influenced by the underlying bedrock. Slopes range from 3 to 15 percent.

Frewsburg soils are in a drainage sequence that includes the well drained Carrollton soils, and are associated with Mandy, Eldred, Ivory, Kinzua and Onoville soils. Frewsburg soils are wetter than the moderately deep Mandy soils, and are wetter and shallower over bedrock than the Kinzua, Eldred, and Onoville soils. They contain less clay than the Ivory soils and lack a fragipan that is typical of Onoville soils.

Typical pedon of Frewsburg silt loam, 3 to 8 percent slopes; in the town of Napoli; 200 feet northwest of radio tower, south of Sawmill Road and Briggs Road:

- A—0 to 1 inches; very dark grayish brown (10YR 3/2) silt loam; weak very fine granular structure; very friable; many fine and few coarse roots; 10 percent rock fragments; very strongly acid; clear wavy boundary.
- BE—1 to 6 inches; yellowish brown (10YR 5/4) silt loam; weak medium subangular blocky parting to fine granular structure; friable; many fine and few medium and coarse roots; brown (10YR 4/3) ped faces; common medium distinct strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; 5 percent rock fragments; very strongly acid; clear wavy boundary.
- Bt—6 to 18 inches; yellowish brown (10YR 5/4) channery silty clay loam; weak coarse prismatic parting to strong coarse and medium angular blocky structure; friable; common fine and few medium roots; brown (10YR 5/3) ped faces in upper part and grayish brown (2.5Y 5/2) ped faces in lower part; common fine clay films on all faces of peds and few thick clay films on surfaces along pores; common medium distinct strong brown (7.5YR 5/6) masses of iron accumulation, and common medium distinct gray (10YR 5/1) iron depletions in the matrix; 15 percent rock fragments of which 5 percent is soft shale; very strongly acid; gradual irregular boundary.
- C—18 to 38 inches; olive gray (5Y 5/2) channery silty clay loam; moderate thin plate-like divisions; firm; common medium distinct yellowish red (5YR 4/6), and yellowish brown (10YR 5/6) masses of iron accumulations; 25 percent soft rock fragments grading to 70 percent decomposed shale in lower part; very strongly acid; gradual wavy boundary.
- R—38 inches; dark yellowish brown (10YR 4/4), dark grayish brown (2.5Y 4/2), and strong brown (7.5YR 4/6) shale bedrock.

The thickness of the solum and depth to bedrock range from 20 to 40 inches. The content of rock fragments, mainly shale, siltstone and sandstone, ranges, by volume, from 5 to 35 percent in the solum, and from 15 to 70 percent in the substratum. Reaction is very strongly acid or strongly acid throughout the profile.

The A horizon has a hue of 10YR or 2.5Y, value of 3 or 4, and chroma of 1 to 4. The texture is silt loam or loam in the fine earth fraction.

The BE horizon has hue of 7.5YR to 2.5Y, value of 4 to 6, and chroma of 2 to 6. The texture of the fine earth fraction is silt loam or loam. Structure is fine or medium angular or subangular blocky. Consistence is friable or firm.

The Bt horizon has hue of 7.5YR to 5Y, value of 4 to 6, and chroma of 2 to 8. The texture is silt loam, loam, silty clay loam and clay loam in the fine earth fraction. Structure is angular or subangular blocky, or prismatic. Consistence is friable or firm.

The C horizon, if it occurs, has colors and textures similar to those of the Bt horizon. The material is massive, or has plate-like divisions. Consistence is friable or firm.

### **Getzville Series**

The Getzville series consists of very deep, nearly level, poorly drained soils on glacial lake plains. These soils formed in glacial lake-laid sediments and old alluvial deposits of silt or very fine sand, underlain by water-sorted deposits of sand or gravel

at depths of 15 to 36 inches. They are on broad valley flats once dominated by former glacial lakes. Slopes are less than 3 percent.

The Getzville soils are in a drainage sequence that includes the somewhat poorly drained Swormville and the moderately well drained Olean soils. They are associated with Tonawanda, Minoa, Canadice, Canandaigua, and Lamson soils. They are less well drained than Minoa soils, and they do not have the deep, sandy deposits typical of Minoa soils. They have a higher content of clay in the subsoil than Tonawanda soils and have more sand in the substratum than Canandaigua soils. They have less clay in the subsoil than Canadice soils and do not have the sand content in the subsoil that is typical of Lamson soils.

Typical pedon of Getzville silt loam; in the town of Dayton; 2 miles east of South Dayton; 1/2 mile north of the junction of New York Route 62 and County Route 3; 50 feet west of New York Route 62:

- Ap—0 to 9 inches; very dark gray (10YR 3/1) silt loam; moderate medium and fine granular structure; friable; many fine roots; slightly acid; abrupt smooth boundary.
- Bg1—9 to 16 inches; light brownish gray (10YR 6/2) silt loam; moderate fine and medium subangular blocky structure; friable; few fine roots; common medium distinct yellowish brown (10YR 5/6) and yellowish red (5YR 5/6) and common coarse prominent reddish brown (5YR 5/4) masses of iron accumulation; slightly acid; clear wavy boundary.
- Bg2—16 to 24 inches; light brownish gray (10YR 6/2) silty clay loam; moderate medium subangular blocky structure; friable; many medium distinct yellowish brown (10YR 5/6) and common medium prominent reddish brown (5YR 5/4) masses of iron accumulation; moderately acid; clear smooth boundary.
- 2C1—24 to 50 inches; gray (10YR 5/1) fine sand; massive; loose; neutral; clear wavy boundary.
- 2C2—50 to 72 inches; gray (10YR 5/1) fine and medium sand; massive; loose; slightly alkaline; slightly effervescent.

The thickness of the solum ranges from 20 to 40 inches. Depth to bedrock is more than 60 inches. Depth to the underlying sandy material ranges from 15 to 36 inches. The content of rock fragments ranges, by volume, from 0 to 5 percent in the surface layer and subsoil, and ranges from 0 to 40 percent in the substratum. Reaction is strongly acid to neutral in the surface layer, moderately acid to neutral in the subsoil, and neutral to slightly alkaline in the substratum.

The Ap horizon has hue of 10YR or 2.5Y, value of 2 to 4, and chroma of 1 to 3. The texture is silt loam or silty clay loam.

The Bg horizon has hue of 7.5YR to 5Y, value of 3 to 6, and chroma of 2 or less. It has common to many high chroma redoximorphic features. Texture is silt loam or silty clay loam. Structure is weak or moderate, medium or coarse prismatic parting to moderate or strong, medium or coarse subangular blocky or angular blocky. Consistence is friable or firm.

The 2C horizon has hue of 5YR to 5Y, value of 3 to 5, and chroma of 1 to 4. The texture ranges from sand to loamy fine sand in the fine earth fraction.

### Gilpin Series

The Gilpin series consists of moderately deep, well drained, gently sloping to very steep soils that formed in material weathered from interbedded shale, siltstone and sandstone. Bedrock is at a depth of 20 to 40 inches. The soils are on hilltops, side slopes, and benches where the topography is influenced by the underlying bedrock. Slopes range from 3 to 50 percent.

The Gilpin soils are on associated landscapes with Rayne, Buchanan, Portville, Ceres, and Eldred soils are. Gilpin soils have bedrock at a depth of 20 to 40 inches,

but Rayne, Ceres, and Eldred soils have bedrock at a depth of more than 40 inches, also Ceres and Eldred soils occupy higher elevations. The Gilpin soils do not have the fragipan that is typical of the very deep Buchanan and Portville soils.

Typical pedon of Gilpin channery silt loam, 25 to 35 percent slopes; in the town of Olean; 1,500 yards south of East River Road and Indiana Ave, 200 feet east of Indiana Ave:

- A—0 to 4 inches; very dark grayish brown (10YR 3/2) channery silt loam; moderate fine granular structure; very friable; many fine and coarse roots; common medium pores; 15 percent rock fragments; very strongly acid; clear smooth boundary.
- Bt1—4 to 16 inches; yellowish brown (10YR 5/6) channery silt loam; weak medium subangular blocky structure; friable; common medium and coarse roots; few fine pores; few thin clay films on all faces of peds; 30 percent rock fragments; very strongly acid; clear wavy boundary.
- Bt2—16 to 26 inches; yellowish brown (10YR 5/4) channery silty clay loam; moderate medium subangular blocky structure; firm; common fine and few medium roots; many very fine pores; common thin clay films on all faces of peds and on surfaces along pores; few medium manganese stains on ped faces; 30 percent rock fragments; very strongly acid; clear irregular boundary.
- C—26 to 35 inches; strong brown (7.5YR 5/6) and grayish brown (10YR 5/2) very channery silt loam and silty clay loam interspersed between thinly-bedded siltstone and sandstone (1/4 to 1/2 inch thick) and highly weathered bedrock; weak medium plate-like divisions; firm; few roots; 40 percent rock fragments; very strongly acid; abrupt smooth boundary.
- R-35 inches; thinly bedded siltstone and sandstone bedrock

The thickness of the solum ranges from 18 to 36 inches. The bedrock is at a depth of 20 to 40 inches. The content of rock fragments, mainly channers and flagstones ranges, by volume, from 5 to 40 percent in the solum, and from 30 to 90 percent in the substratum. Reaction is extremely acid to strongly acid throughout the profile.

The A horizon has hue of 10YR or 2.5Y, value of 2 to 4, and chroma of 1 to 3. The texture is silt loam or loam in the fine-earth fraction.

The Bt horizon has hue of 7.5YR to 2.5Y, value of 4 to 6, and chroma of 4 to 8. The texture is silt loam, loam, silty clay loam, or clay loam in the fine earth fraction. Structure is weak or moderate, angular or subangular blocky. Consistence is friable or firm.

The C horizon has hue of 7.5YR to 2.5Y, value of 3 to 5, and chroma of 2 to 6. The texture is silt loam, loam, or silty clay loam in the fine earth fraction. In some pedons this horizon may have redoximorphic features. Consistence is friable or firm. The horizon is massive or has plate like divisions.

The R horizon is horizontal bedded siltstone, shale or fine grained sandstone bedrock.

#### **Gretor Series**

The Gretor series consists of moderately deep, somewhat poorly drained, gently sloping to strongly sloping soils on upland plateaus, summits and benches at elevations above 1,800 feet. Bedrock, consisting mainly of siltstone and sandstone, is at a depth of 20 to 40 inches. These soils formed in a thin mantle of glacial till where the topography is influenced by the underlying bedrock. Slopes range from 3 to 15 percent.

The Gretor soils are in a drainage sequence that includes the well drained Mongaup soils. They are in landscape positions similar to those of Almond, Napoli and Hornellsville soils. They are not as deep over bedrock as Almond and Napoli soils. They have less clay in the subsoil than Hornellsville soils.

Typical pedon of Gretor channery silt loam, 3 to 8 percent slope; in the town of East Otto; 6,200 feet west of Crumb Hill Road, and 400 feet south of Meyer Hill Road:

- Ap—0 to 8 inches; very dark grayish brown (10YR 3/2) channery silt loam; moderate medium granular structure; friable; many fine roots; 25 percent rock fragments; strongly acid; abrupt smooth boundary.
- Bw—8 to 13 inches; brown (10YR 5/3) channery silt loam; weak medium subangular blocky structure; friable; many fine roots; 25 percent rock fragments; strongly acid; clear wavy boundary.
- Bg1—13 to 21 inches; light brownish gray (2.5Y 6/2) channery silt loam; moderate coarse subangular blocky structure; firm; few fine roots; common fine pores; common coarse distinct and many fine distinct light olive brown (2.5Y 5/4) and prominent yellowish brown (10YR 5/8) masses of iron accumulation within the matrix; 30 percent rock fragments; strongly acid; clear wavy boundary.
- Bg2—21 to 25 inches; light olive gray (5Y 6/2) channery silty clay loam; weak coarse subangular blocky structure; firm; few fine pores; common coarse prominent yellowish red (5YR 5/8) masses of iron accumulation within the matrix; 25 percent rock fragments; moderately acid; abrupt smooth boundary.
- R—25 inches; fine-grained sandstone.

The thickness of the solum and depth to bedrock ranges from 20 to 40 inches. The content of rock fragments, consisting mainly of siltstone or fine-grained sandstone, ranges, by volume, from 5 to 35 percent throughout the profile. Reaction ranges from very strongly acid to moderately acid in the surface layer and subsoil, and from strongly acid to slightly acid in the substratum.

The Ap horizon has a hue of 7.5YR to 2.5Y, value of 2 to 4, and chroma of 1 to 4. The texture in the fine earth fraction is loam, silt loam or silty clay loam.

The Bw or Bg horizon has hue of 5YR to 5Y, value of 3 to 6, and chroma of 0 to 6. The texture is silt loam, silty clay loam, clay loam, or loam in the fine earth fraction. Structure is weak or moderate, fine to coarse subangular blocky or angular blocky. Consistence is friable or firm.

The C horizon, where present, has hue of 5YR to 5Y, value of 4 or 5, and chroma of 2 to 4. Texture is silt loam, clay loam, or loam in the fine earth fraction. It has plate like divisions or the material is massive. Consistence is friable or firm.

## **Halsey Series**

The Halsey series consists of very deep, very poorly drained nearly level soils on outwash plains and valley terraces. These soils formed in water-sorted gravelly and sandy material derived from shale, sandstone and siltstone. Slopes range from 0 to 3 percent.

The Halsey soils are in a drainage sequence that includes the well drained Chenango soils, the moderately well drained Castile soils, and the somewhat poorly drained Red Hook soils. Halsey soils are on landscape positions similar to those of Alden, Canandaigua and Wayland soils. They have less clay and a higher rock fragment content throughout the profile than Alden or Canandaigua soils. They do not have the high silt content that is typical of Wayland soils.

Typical pedon of Halsey silt loam, 0 to 3 percent slopes; in the town of Farmersville; 900 feet east of County Route 21 and County Route 80, 600 feet north of County Route 21:

- Ap—0 to 6 inches; very dark gray (10YR 3/1), grayish brown (10YR 5/2) dry, silt loam; moderate medium granular structure; friable; 10 percent rock fragments; slightly acid; abrupt smooth boundary.
- Bg1—6 to 21 inches; gray (10YR 5/1) gravelly silt loam; weak medium subangular blocky structure; friable; common medium distinct yellowish brown (10YR 5/4)

- masses of iron accumulation in the matrix; 15 percent rock fragments; slightly acid; clear wavy boundary.
- Bg2—21 to 34 inches; gray (10YR 5/1) gravelly loam; moderate medium granular structure; very friable; common medium distinct yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; 20 percent rock fragments; neutral; clear wavy boundary.
- 2C1—34 to 48 inches; dark grayish brown (10YR 4/2) very gravelly loamy fine sand; massive; loose; common medium distinct yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; 45 percent rock fragments; neutral; clear wavy boundary.
- 2C2—48 to 72 inches; dark grayish brown (10YR 4/2) stratified sand and gravel; single grain, loose; common medium distinct yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; 30 percent rock fragments; slightly effervescent.

The thickness of the solum ranges from 20 to 39 inches. The depth to carbonates ranges from 30 to 60 inches. The depth to bedrock is more than 60 inches. The content of rock fragments range, by volume, from 0 to 35 percent in the solum, and from 0 to 60 percent in the substratum. Reaction ranges from moderately acid to neutral in the solum, and slightly acid to moderately alkaline in the substratum.

The Ap horizon has a hue of 10YR or 2.5Y, value of 2 or 3, and chroma of 0 to 2. The texture is fine sandy loam, silt loam, or loam or the mucky analogs of those textures.

The Bg horizon has hue of 10YR to 5Y or is neutral in hue. It has value of 4 to 6, and chroma of 2 or less. The texture is loam, silt loam or fine sandy loam in the fine earth fraction. Structure is weak or moderate granular, platy or subangular blocky. This horizon has common or many, medium or coarse, distinct redoximorphic features. Consistence is very friable to firm.

The 2C horizons have a hue of 10YR to 5Y, value of 3 to 6, and chroma of 2 or less. The texture is mainly loamy fine sand to sand or consists of stratified, loose or firmly packed gravel and sand.

#### **Hamlin Series**

The Hamlin series consists of very deep, well drained, nearly level soils in the highest parts on floodplains. These soils formed in recent alluvial deposits. Slopes range from 0 to 3 percent.

Hamlin soils are in a drainage sequence that includes the moderately well drained Teel soils, the somewhat poorly drained Wakeville soils and poorly drained Wayland soils. They are associated with Chenango, Scio and Allard soils. Hamlin soils formed in recent alluvial deposits. Scio and Allard soils formed in silty lacustrine sediments, or older alluvium in higher positions on nearby terraces. Hamlin soils do not have the contrasting gravelly underlying deposits that are typical of Allard soils, and they do not have the gravel content throughout that is typical of Chenango soils.

Typical pedon of Hamlin silt loam; in town of Otto; 100 feet south of Cattaraugus Creek, and 300 feet west of North Otto Road:

- Ap—0 to 10 inches; dark grayish brown (10YR 4/2) silt loam; moderate fine and medium granular structure; very friable; many fine roots; neutral; clear smooth boundary.
- Bw1—10 to 17 inches; brown (10YR 4/3) very fine sandy loam; weak fine subangular blocky structure; very friable; many fine roots; neutral; clear smooth boundary.
- Bw2—17 to 36 inches; brown (10YR 4/3) silt loam; weak medium subangular blocky structure; friable; few roots; neutral; clear wavy boundary.
- C1—36 to 48 inches; dark grayish brown (10YR 4/2) very fine sandy loam; massive; very friable; neutral; clear wavy boundary.

C2—48 to 72 inches; dark grayish brown (10YR 4/2) silt loam; massive; friable; slightly alkaline; slightly effervescent.

The thickness of the solum ranges from 24 to 48 inches. The depth to bedrock is more than 60 inches. The depth to carbonates or to contrasting material is more than 40 inches. The content of rock fragments commonly is less than 5 percent throughout the profile. Reaction ranges from strongly acid to neutral in the upper 20 inches and from moderately acid to slightly alkaline below this depth.

The Ap horizon has hues of 5YR to 10YR, value of 3 or 4, and chroma of 1 to 3. The texture is silt loam or very fine sandy loam.

The Bw horizon has hue of 5YR to 10YR, value of 3 to 5, and chroma of 2 to 4. The texture is silt loam or very fine sandy loam. Structure is weak or moderate, fine or medium granular, subangular blocky or prismatic. Consistence is very friable or friable.

The C horizon has hue of 5YR to 10YR, value of 3 to 5, and chroma of 2 to 4. The texture is silt loam, very fine sandy loam or fine sandy loam. The material is massive or has plate-like divisions.

#### **Hartleton Series**

The Hartleton series consists of deep, well drained moderately steep to very steep soils, that formed in residuum weathered from interbedded shale, siltstone and finegrained sandstone. These soils are on side slopes and benches of the unglaciated plateau. Slopes range from 25 to 50 percent.

Hartleton soils are associated with Buchanan, Cavode, Gilpin, Portville, and Rayne soils. Hartleton series are deeper to bedrock than Gilpin soils. Hartleton soils are better drained and lack the fragipan that is typical of Buchanan and Portville soils. Hartleton soils contain less clay in the subsoil than Cavode soils, and contain more rock fragments in the solum than the deeper Rayne soils.

Typical pedon of Hartleton channery silt loam; 25 to 35 percent slopes; in the town of Olean; 1,000 feet west of County Route 29, along the NY and PA state line:

- A—0 to 3 inches; dark grayish brown (10YR 4/2) channery silt loam; weak fine granular structure; friable; many fine roots; 15 percent rock fragments; strongly acid; abrupt smooth boundary.
- BE—3 to 10 inches; yellowish brown (10YR 5/4) channery silt loam; moderate medium subangular blocky structure; friable; common fine roots; 15 percent rock fragments; strongly acid; clear wavy boundary.
- Bt1—10 to 19 inches; brown (10YR 5/3) channery silt loam; moderate medium subangular blocky structure; friable; common fine roots; few clay films on all faces of peds; 30 percent rock fragments; strongly acid; clear wavy boundary.
- Bt2—19 to 32 inches; dark yellowish brown (10YR 4/4) very channery silt loam; moderate medium subangular blocky structure; friable; few fine roots; few clay films on all faces of peds; 45 percent rock fragments; strongly acid; clear wavy boundary.
- BC—32 to 38 inches; brown (10YR 4/3) very channery silt loam; weak medium subangular blocky structure; friable; few clay films on all faces of peds; common medium distinct yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; 45 percent rock fragments; strongly acid; clear wavy boundary.
- C—38 to 58 inches; brown (10YR 4/3) extremely channery silt loam; massive; friable; 60 percent rock fragments; strongly acid; abrupt smooth boundary.
- R—58 inches; interbedded siltstone, sandstone and shale bedrock.

The thickness of the solum ranges from 20 to 40 inches. The depth to bedrock ranges from 40 to 60 inches. The content of rock fragments, consisting mainly of shale, sandstone or siltstone, ranges by volume, from 15 to 40 percent in the surface

layer, from 15 to 80 percent in the BE horizon, from 25 to 80 percent in individual horizons of the subsoil, and from 50 to 90 percent in the substratum. Reaction is strongly acid or very strongly acid throughout the profile.

The A horizon has hue of 7.5YR or 10YR, value of 3 to 5, and chroma of 2 to 4. Texture of the fine earth fraction is silt loam or loam.

The BE horizon that has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 3 to 6. Textures of the fine earth fraction are silt loam or loam.

The Bt horizon has hue of 5YR to 10YR, value of 4 to 6, and chroma of 3 to 6. Texture of the fine earth fraction ranges from loam to silty clay loam with 18 to 30 percent clay.

The BC horizon has hue of 5YR to 10YR, value of 4 to 6, and chroma of 3 to 6. Textures of the fine earth fraction are silt loam, silty clay loam, or loam.

The C horizon has hue of 5YR to 10YR, value of 4 to 6, and chroma of 3 to 8. Textures of the fine earth fraction are silt loam and loam.

#### **Holderton Series**

The Holderton series consists of very deep, somewhat poorly drained, nearly level soils on flood plains. These soils formed in post glacial alluvium derived mainly from areas of shale and sandstone. Slopes range from 0 to 3 percent.

Holderton soils are in a drainage sequence that includes the well drained Tioga soils, the moderately well drained Middlebury soils, and the poorly drained Wyalusing soils. They are associated with Hamlin, Teel, and Wakeville soils. They have a higher sand content than Wakeville soils and are not as well drained than Hamlin and Teel soils.

Typical pedon of Holderton silt loam; in town of Allegany; in a stream bank 250 feet north of County Route 60, 1/4 mile west of the intersection of County Route 60 and County Route 61:

- Ap—0 to 6 inches; very dark grayish brown (10YR 3/2) silt loam; moderate medium granular structure; friable; slightly acid; clear smooth boundary.
- Bw—6 to 14 inches; brown (10YR 4/3) fine sandy loam; weak medium subangular blocky structure; friable; slightly acid; clear wavy boundary.
- Bg1—14 to 28 inches; grayish brown (10YR 5/2) fine sandy loam; weak medium subangular blocky structure; very friable; brown (7.5YR 5/4 and 10YR 4/3) masses of iron accumulation in the matrix; 5 percent rock fragments; slightly acid; clear wavy boundary.
- Bg2—28 to 36 inches; grayish brown (10YR 5/2) loam; weak medium subangular blocky structure; friable; common medium distinct yellowish brown (10YR 5/4) and strong brown (7.5YR 5/8) masses of iron accumulation in the matrix; 5 percent rock fragments; slightly acid; clear wavy boundary.
- C1—36 to 52 inches; dark grayish brown (10YR 4/2) gravelly loam; massive; very friable; common medium distinct yellowish brown (10YR 5/4) and strong brown (7.5YR 5/8) masses of iron accumulation in the matrix; 25 percent rock fragments; neutral; abrupt wavy boundary.
- C2—52 to 72 inches; dark grayish brown (10YR 4/2)very gravelly sandy loam; massive; loose; 35 percent rock fragments; neutral.

The thickness of the solum ranges from 24 to 40 inches. The depth to bedrock is more than 60 inches. The content of rock fragments consisting mainly of gravel ranges, by volume, from 0 to 10 percent in the surface layer, from 0 to 20 percent in the subsoil, and from 0 to 35 percent in the substratum. Reaction ranges from moderately acid to neutral in the solum, and from slightly acid to slightly alkaline in the substratum.

The Ap horizon has hue of 7.5YR to 2.5Y, value of 3 to 5, and chroma of 2 or 3. Texture is silt loam, loam, or fine sandy loam.

The B horizon has hue of 7.5YR to 2.5Y, value of 4 or 5, and chroma of 1 to 4. The texture in the fine earth fraction is silt loam, loam, or fine sandy loam.

The C horizon has hue of 10YR or 2.5Y, value of 4 or 5, chroma of 1 through 6. The texture in the fine earth fraction is silt loam, loam, fine sandy loam, sandy loam or the gravelly analogs of those textures.

#### **Hornell Series**

The Hornell series consists of moderately deep, somewhat poorly drained, nearly level to very steep soils on bedrock-controlled till plains in upland. Bedrock is at a depth of 20 to 40 inches. These soils formed in acid, clayey glacial till derived from soft shale. Slopes range from 0 to 50 percent.

Hornell soils are associated with Fremont, Schuyler, Towerville, Orpark, Mardin, and Volusia soils. They have a higher content of clay than Fremont and Orpark soils, and are wetter than Schuyler and Towerville soils. They do not have a fragipan that is typical of Mardin and Volusia soils and are finer textured than these soils.

Typical pedon of Hornell silt loam, 8 to 15 percent slopes; in the town of Yorkshire; 350 feet south of Block Road and 1,800 feet east of West Town Line Road:

- Ap—0 to 8 inches; dark grayish brown (2.5Y 4/2) silt loam; moderate fine and medium granular structure; friable; many fine roots; 5 percent rock fragments; strongly acid; clear smooth boundary:
- Bw1—8 to 12 inches; light olive brown (2.5Y 5/4) silty clay loam; moderate medium subangular blocky structure; friable; common fine roots; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation; 5 percent rock fragments; strongly acid; clear wavy boundary.
- Bw2—12 to 15 inches; light olive brown (2.5Y 5/4) silty clay loam; moderate medium angular blocky structure within coarse prisms; firm; common fine roots; grayish brown (2.5Y 5/2) ped faces; common medium distinct strong brown (7.5YR 5/6) masses of iron accumulation and common medium distinct grayish brown (2.5Y 5/2) iron depletions; 5 percent rock fragments; strongly acid; clear wavy boundary.
- Bw3—15 to 28 inches; olive brown (2.5Y 4/4) silty clay; moderate medium angular blocky structure within coarse prisms; firm; gray (5Y 6/1) ped faces; few fine roots; many medium distinct light olive gray (5Y 6/2) iron depletions; 5 percent rock fragments; strongly acid; gradual smooth boundary.
- Cg—28 to 34 inches; grayish brown (2.5Y 5/2) channery silty clay loam; moderate thin plate-like divisions; firm; light olive gray (5Y 6/2) ped faces; common medium distinct light olive brown (2.5Y 5/6) masses of iron accumulation; 25 percent rock fragments; strongly acid; abrupt smooth boundary.
- 2R-34 inches; soft shale bedrock.

The thickness of the solum ranges from 17 to 40 inches. The depth to bedrock ranges from 20 to 40 inches. The content of rock fragments ranges, by volume, from 0 to 35 percent in the surface layer, from 1 to 35 percent in the subsoil, and from 10 to 60 percent in the substratum. Rock fragments are dominantly channers or flagstones of shale or siltstone. Reaction ranges from extremely acid to strongly acid in the surface layer, and very strongly acid or strongly acid in the subsoil and substratum.

The Ap horizon has hue of 7.5YR to 2.5Y, value of 2 to 4, and chroma of 1 to 4. The texture is silt loam, loam, or silty clay loam in the fine earth fraction.

The Bw horizon has hue of 7.5YR to 5Y, value of 3 to 6, and chroma of 2 to 8. Faces of peds have chroma of 1 or 2. The texture is silty clay loam, silty clay, or clay in the fine-earth fraction. It has subangular blocky or angular blocky structure which is

within coarse or very coarse prisms in many pedons. Consistence is friable to very firm.

The Cg horizon has colors and textures similar to those of the Bw horizon. The material is massive, or has plate-like divisions inherited from the rock structure. Consistence is firm or very firm.

The R horizon is shale or siltstone bedrock that weathers readily in the upper part, and can be easily cut with hand tools in the upper few inches.

#### Hornellsville Series

The Hornellsville series consists of moderately deep, somewhat poorly drained, gently sloping to moderately steep soils on bedrock-controlled till plains on the upland plateau above elevations of 1,800 feet. Bedrock is at a depth of 20 to 40 inches. These soils formed in acid, clayey glacial till derived from soft shale. Slopes range from 3 to 15 percent.

Hornellsville soils are associated with Almond, Salamanca, Ischua, Napoli, Willdin, and Rushford soils. They have a higher content of clay than Almond soils and are also wetter than Salamanca and Ischua soils. They do not have a firm fragipan that is typical of Willdin, Napoli and Rushford soils and are finer textured.

Typical pedon of Hornellsville silt loam, 8 to 15 percent; in the town of Farmersville; 0.5 miles east of Marble Road and 0.5 miles south of Lime Lake Road:

- A—0 to 5 inches, dark grayish brown (10YR 4/2) silt loam; moderate medium granular structure; friable; many fine roots; 5 percent rock fragments; strongly acid; clear smooth boundary:
- Bw1—5 to 11 inches; yellowish brown (10YR 5/4) silty clay loam; moderate medium subangular blocky structure; friable; common fine roots; common fine pores; few fine distinct light brownish gray (10YR 6/2) iron depletions within the matrix; 5 percent rock fragments; very strongly acid; clear smooth boundary.
- Bw2—11 to 16 inches; light olive brown (2.5Y 5/4) silty clay loam; strong medium angular blocky structure within moderate medium prisms; firm; few fine roots; few fine pores; light brownish gray (2.5Y 6/2) ped faces; common medium distinct strong brown (7.5YR 5/6) masses of iron accumulation within the matrix; 5 percent rock fragments; very strongly acid; clear wavy boundary.
- Bw3—16 to 26 inches; brown (7.5YR 5/4) silty clay; strong medium angular blocky structure within prismatic structure; firm; gray (5Y 5/1) ped faces; many medium prominent gray (10YR 6/1) iron depletions within the matrix; 5 percent rock fragments; very strongly acid; clear smooth boundary.
- Bw4—26 to 34 inches, yellowish brown (10YR 5/6) silty clay; moderate medium platy structure within weak coarse prisms; firm; gray (5Y 5/1) ped faces; many medium prominent gray (5Y 6/1)iron depletions within the matrix; 10 percent rock fragments (soft shale); very strongly acid; clear smooth boundary.
- 2R—34 inches; fine strata of gray (5Y 5/1) soft shale bedrock; easily crushed; strongly acid.

The thickness of the solum ranges from 17 to 40 inches. The depth to bedrock ranges from 20 to 40 inches. The content of rock fragments ranges, by volume, from 0 to 5 percent in the surface layer, from 3 to 35 percent in the subsoil, and from 15 to 60 percent in the substratum. Rock fragments are dominantly channers or flagstones of shale or siltstone. Reaction ranges from extremely acid to strongly acid in the surface layer, and very strongly acid or strongly acid in the subsoil and substratum.

The Ap horizon has hue of 7.5YR to 2.5Y, value of 2 to 4, and chroma of 1 to 4. The texture is silt loam or silty clay loam in the fine earth fraction.

The Bw horizon has hue of 7.5YR to 5Y, value of 3 to 6, and chroma of 2 to 8. Faces of peds have chroma of 1 or 2. The texture is silty clay loam, silty clay, or clay

in the fine-earth fraction. It has subangular blocky or angular blocky structure which is within medium to very coarse prisms. Consistence is firm or very firm.

The C horizon, where present, has colors and textures similar to those of the Bw horizon. The material is massive, or has plate like divisions inherited from the rock structure. Consistence is firm or very firm.

The R horizon is shale or siltstone bedrock that weathers readily in the upper part, and can be easily cut with hand tools in the upper few inches.

#### **Hudson Series**

The Hudson series consists of very deep, moderately well drained, strongly sloping to very steep soils on glacial lake plains and dissected valley side slopes. These soils formed in lake-laid sediments dominated by clays and silts. Slopes range from 8 to 50 percent.

Hudson soils are in a drainage sequence that includes the somewhat poorly drained Rhinebeck soils, and the poorly drained Canadice soils. They commonly are associated with Dunkirk, Varysburg, Collamer, Hornell, and Valois soils. They contain more clay than Dunkirk and Collamer soils. They lack the gravelly rock fragments typical of the Varysburg soils, and contain fewer rock fragments than Valois soils which formed in glacial till. Hornell soils have bedrock at a depth of 20 to 40 inches from the surface.

Typical pedon of Hudson silt loam, 8 to 15 percent slopes; in the town of East Otto; in a hay field north of Traffic Street, about 0.6 miles east of junction with Harvey Road:

- Ap—0 to 7 inches; dark grayish brown (10YR 4/2) silt loam; moderate fine and medium granular structure; friable; many fine and few medium roots; slightly acid; abrupt smooth boundary.
- E—7 to 11 inches; pale brown (10YR 6/3) silt loam; weak medium subangular blocky structure; friable; many fine roots; slightly acid; clear wavy boundary.
- B/E—11 to 16 inches; dark yellowish brown (10YR 4/4) silty clay loam; strong medium subangular blocky structure; firm; common fine roots mostly along ped surfaces; peds coated with pale brown (10YR 6/3) silt; few fine faint yellowish brown (10YR 5/6) masses of iron accumulation; neutral; clear wavy boundary.
- Bt1—16 to 25 inches; brown (10YR 4/3) silty clay; strong medium prismatic structure parting to strong medium angular blocky; firm; few fine roots along ped surfaces; peds coated with many dark brown (10YR 3/3) clay films on all faces of peds; common medium faint grayish brown (10YR 5/2) iron depletions and yellowish brown (10YR 5/6) masses of iron accumulation; neutral; clear smooth boundary.
- Bt2—25 to 38 inches; dark yellowish brown (10YR 4/4) silty clay; moderate coarse prismatic structure parting to moderate medium angular blocky; firm; common brown (7.5YR 4/2) clay films on all faces of peds; common fine faint yellowish brown (10YR 5/6) masses of iron accumulation and grayish brown (10YR 5/2) iron depletions; slightly alkaline; clear wavy boundary.
- C—38 to 72 inches; brown (10YR 4/3 and 7.5YR 5/2) silty clay with varves of silty clay loam and silt; weak medium plate-like divisions, inherited from parent material; firm; moderately alkaline; slightly effervescent.

The thickness of the solum ranges from 20 to 60 inches. The depth to carbonates ranges from 20 to 70 inches. The depth to bedrock is more than 60 inches. The content of rock fragments, dominantly gravel, ranges, by volume, from 0 to 25 percent in the surface and subsurface layers, and from 0 to 10 percent in each horizon below. Reaction ranges from strongly acid to neutral in the surface and subsurface layers, from moderately acid to slightly alkaline in the subsoil, and from neutral to moderately alkaline in the substratum.

The Ap horizon has a hue of 7.5YR to 2.5Y, value of 2 to 5, and chroma of 2 or 3. The texture is loam, silt loam, or silty clay loam in the fine earth fraction.

The E horizon has a hue of 7.5YR to 5Y, value of 5 or 6, and chroma of 2 or 3. The texture is very fine sandy loam, loam, silt loam or silty clay loam in the fine earth fraction. The E horizon has weak or moderate subangular blocky or platy structure. Consistence ranges from very friable to firm.

The B/E horizon has colors and textures similar to that of the Bt horizon and E horizon. Redoximorphic features are few through many and faint, or they are absent.

The Bt horizon has hue of 7.5YR to 5Y, value of 3 to 6, and chroma of 2 to 4. The horizon has both low and high chroma redoximorphic features. The textures are silty clay loam or silty clay with subhorizons ranging from silt loam to clay in the fine earth fraction. Structure is moderate or strong, medium or coarse, angular or subangular blocky, with or without medium to very coarse prisms. Consistence is firm or very firm.

The C horizon has hue of 5YR to 5Y, value of 3 to 5, and chroma of 1 to 3. The texture ranges from silt loam to clay. The material is massive, or has plate-like divisions inherited from the varved parent material. Consistence is firm or very firm.

#### **Ischua Series**

The Ischua series consists of moderately deep, moderately well drained, gently sloping to very steep soils on bedrock controlled benches, hilltops, valley sides and on other side slopes of the upland plateau above elevations of 1,800 feet. These soils formed in a thin mantle of glacial till underlain by siltstone and shale bedrock at a depth of 20 to 40 inches. Slopes range from 3 to 50 percent.

Ischua soils are in a drainage sequence that includes somewhat poorly drained Gretor soils. Ischua soils are associated with Almond, Hornellsville, Salamanca, Willdin, and Yorkshire soils. They contain less clay than Hornellsville soils and are not as deep over bedrock as Salamanca soils. They do not have the fragipan that is typical of Willdin and Yorkshire soils, and are not as deep to bedrock and are better drained than Almond soils.

Typical pedon of Ischua channery silt loam, 8 to 15 percent slopes; in the town of Ellicottville; one mile north of Horn Hill Road and New York Route 242, 100 feet north of Horn Hill Road:

- Ap—0 to 6 inches; dark grayish brown (10YR 4/2) channery silt loam; moderate medium granular structure; friable; many fine roots; 15 percent rock fragments; strongly acid; clear smooth boundary.
- Bw1—6 to 18 inches; yellowish brown (10YR 5/4) silt loam; moderate medium subangular blocky structure; friable; common fine roots; 10 percent rock fragments; strongly acid; clear smooth boundary.
- Bw2—18 to 23 inches; brown (10YR 5/3) channery silt loam; weak medium subangular blocky structure; friable; few fine roots; common medium distinct light brownish gray (10YR 6/2) iron depletions; 20 percent rock fragments; strongly acid; clear smooth boundary.
- BC—23 to 28 inches; light brownish gray (2.5Y 6/2) channery silty clay loam; moderate medium subangular blocky structure; firm; common coarse prominent strong brown (7.5YR 5/6) masses of iron accumulation; 20 percent rock fragments; strongly acid; abrupt smooth boundary.
- 2R—28 inches; gray (10YR 5/1) and light brownish gray (10YR 6/2) siltstone and shale bedrock.

The thickness of the solum and depth to bedrock range from 20 to 40 inches. The content of rock fragments consisting mainly of channers and flagstones ranges, by volume, from 5 to 35 percent by volume in the upper part of the solum and from 10 to 60 percent in the lower part of the solum and substratum. Reaction ranges from very

strongly acid to moderately acid in the surface layer and upper subsoil, and from very strongly acid to slightly acid in the lower subsoil and substratum.

The Ap horizon has hue of 7.5YR or 10YR, value of 3 or 4, and chroma of 1 or 3. The texture is silt loam or loam in the fine earth fraction.

The Bw horizon has hue of 7.5YR or 2.5Y, value of 4 or 6, and chroma of 3 or 6. Texture is silt loam, loam, or silty clay loam in the fine earth fraction. Structure is weak or moderate, fine to coarse subangular blocky. Consistence ranges from very friable to firm.

The BC horizon has hue of 5YR through 5Y, value of 4 through 6, and chroma of 1 through 6. The texture is silt loam, loam, or silty clay loam in the fine earth fraction with gravelly or channery analogs of those textures. Structure is subangular blocky or platy. Consistence is friable or firm.

The 2R horizon is shale, siltstone or sandstone that is horizontally bedded and commonly interbedded.

# **Ivory Series**

The Ivory series consists of very deep, somewhat poorly drained, nearly level to moderately steep soils formed in weathered residuum of interbedded shale, siltstone and fine grained sandstone. These soils are on the crests of plateaus and on the summits of uplands above elevations of 1,800 feet. Slopes range from 0 to 25 percent.

Ivory soils are associated with the Carrollton and Frewsburg soils, but are deeper to bedrock and have more clay in the subsoil. They are also associated with Kinzua, Onoville, and Eldred soils but are finer textured and wetter.

Typical pedon of Ivory silt loam, 3 to 8 percent slopes; in town of Cold Spring; on Parker Hill Road at junction with access road:

- Ap—0 to 6 inches; dark grayish brown (10YR 4/2) silt loam; moderate fine subangular blocky structure; friable; many fine roots; 10 percent rock fragments, 5 percent greater than 3 inches in diameter; very strongly acid; abrupt smooth boundary.
- BE—6 to 14 inches; yellowish brown (10YR 5/4) channery silt loam; moderate medium and fine subangular blocky structure; friable; common fine roots; few medium distinct strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; 15 percent rock fragments, of which 5 percent is greater than 3 inches in diameter; very strongly acid; gradual wavy boundary.
- Bt1—14 to 24 inches; yellowish brown (10YR 5/4) channery silty clay loam; moderate medium and fine subangular blocky structure; friable; few fine roots; light brownish gray (10YR 6/2) ped faces; common clay films on all faces of peds; common medium distinct strong brown (7.5YR 5/6) masses of iron accumulation in the matrix and light brownish gray (10YR 6/2) iron depletions in the matrix; 15 percent rock fragments, of which 5 percent is greater than 3 inches in diameter; strongly acid; clear wavy boundary.
- Bt2—24 to 38 inches; brown (10YR 5/3) channery silty clay; weak coarse prismatic structure parting to moderate medium subangular blocky structure; friable; few fine roots in upper part; gray (10YR 6/1) ped faces; common clay films on all faces of peds; common medium distinct strong brown (7.5YR 5/6) masses of iron accumulation in the matrix and gray (10YR 6/1 iron depletions in the matrix; 25 percent rock fragments, of which 10 percent is greater than 3 inches in diameter; very strongly acid; clear wavy boundary.
- BC—38 to 48 inches; gray (10YR 6/1), brown (10YR 4/3), and strong brown (7.5YR 5/6) channery silty clay; weak coarse prismatic structure parting to weak medium subangular blocky structure; firm; 30 percent rock fragments, of which 10 percent is greater than 3 inches in diameter; strongly acid; clear wavy boundary.

C—48 to 72 inches; gray (10YR 6/1), brown (10YR 4/3), and strong brown (7.5YR 5/6) channery silty clay loam; massive; firm; 25 percent rock fragments, of which 5 percent is greater than 3 inches in diameter; very strongly acid.

The thickness of the solum ranges from 20 to 50 inches. The depth to bedrock is more than 60 inches. The content of rock fragments ranges, by volume, from 5 to 30 percent in the solum, and from 15 to 60 percent in the substratum. Reaction ranges from very strongly acid to moderately acid throughout the profile.

The Ap horizon has hue of 10YR or 2.5Y; value of 3 or 4, and chroma of 2 to 4. The texture is silt loam or silty clay loam in the fine earth fraction.

The BE horizon has hue of 10YR to 5Y, value of 4 to 6, and chroma of 2 to 6. The texture is silt loam, silty clay, silty clay loam or clay in the fine earth fraction.

The Bt horizon has hue of 7.5YR to 5Y, value of 4 to 7, and chroma of 1 to 6, with distinct or prominent high and low chroma redoximorphic features. The texture is silty clay loam, silty clay or clay in the fine earth fraction. Structure is prismatic, or weak to strong angular or subangular blocky structure. Consistence is friable or firm. Some pedons have a BC horizon, with colors and textures similar to those of the Bt horizon.

The C horizon has hue of 5YR to 5Y or 5GY, value of 3 to 7, and chroma of 1 to 6. It has textures similar to those of the B horizon. It has prismatic or plate like divisions, or it is massive. Consistence is firm or very firm.

#### Kinzua Series

The Kinzua series consists of very deep, well drained, gently sloping to very steep soils that formed in residuum of interbedded shale, siltstone, and some fine grained sandstone. They are on upland ridgetops and hillsides of the unglaciated plateau at elevations above 1,800 feet. Slope ranges from 3 to 60 percent.

The Kinzua soils are in a drainage sequence that includes the moderately well drained Eldred soils. They are associated with Carrollton, Frewsburg, Ivory, and Onoville soils. They are deeper over bedrock than Carrollton and Frewsburg soils, and are better drained than Ivory soils. They do not have a fragipan that is typical of Onoville soils.

Typical pedon of Kinzua channery silt loam, 25 to 35 percent slopes; in the town of Olean; 4,000 feet west of County Route 29 (Barnum Road), and 1.5 miles southeast of NY 16 and County Route 29.

- A—0 to 3 inches; dark grayish brown (10YR 4/2) channery silt loam, light brownish gray (10YR 6/2) dry; moderate medium and fine granular structure; friable; common fine roots; 15 percent rock fragments; strongly acid; clear smooth boundary.
- BE—3 to 12 inches, yellowish brown (10YR 5/4) channery silt loam; weak fine subangular blocky structure; friable; common fine roots; 15 percent rock fragments; strongly acid; clear wavy boundary.
- Bt—12 to 36 inches, yellowish brown (10YR 5/4) channery silt loam; moderate fine subangular blocky structure; friable; common fine roots; common clay films on all faces of peds and on surfaces along pores; 20 percent rock fragments; strongly acid; abrupt wavy boundary.
- BC—36 to 45 inches, brown (10YR 5/3) very channery silt loam; weak thin platy structure; firm; 45 percent rock fragments; strongly acid; clear wavy boundary.
- C—45 to 72 inches, olive brown (2.5Y 4/3) very channery silt loam; massive; firm; 45 percent rock fragments; strongly acid.

The thickness of the solum ranges from 34 to 60 inches. The depth to bedrock is more than 60 inches, but commonly is less than 100 inches. The content of rock fragments, consisting mainly of channery fragments and flagstones, ranges by

volume, from 5 to 35 percent in the solum, and from 10 to 60 percent in the substratum. Reaction is very strongly acid or strongly acid throughout the profile.

The A horizon has a hue of 7.5YR or 10YR, value of 3 or 4, and chroma of 2 to 4. The texture is silt loam or loam in the fine earth fraction.

The BE horizon has hue of 7.5YR to 2.5Y, value and chroma of 4 to 6. The texture is loam or silt loam in the fine earth fraction. Consistence is friable or very friable.

The Bt horizon has hue of 7.5YR to 5Y, value of 4 to 6, and chroma of 3 to 8. The texture of the fine earth fraction is loam, silt loam or silty clay loam. Some pedons have redoximorphic features in the lower part of the B horizon. Structure is subangular or angular blocky. Consistence is friable or firm.

The BC horizon has hue of 7.5YR to 5Y, value of 4 or 5 and chroma of 3 to 6. The textures are similar to those of the C horizon. Structure is subangular blocky or platy. Consistence ranges from friable to very firm.

The C horizon has hue of 7.5YR to 5Y, value of 4 or 5, and chroma of 3 to 6. The texture is loam, silt loam, silty clay loam and clay loam in the fine-earth fraction. This horizon has prismatic or platy structure, or the material is massive. Consistence is firm or very firm.

# **Knapp Creek Series**

The Knapp Creek series consists of deep, well drained, gently sloping to strongly sloping soils that formed in residuum weathered from sandstone conglomerate. These soils are in areas of broad ridgetops and summits of the unglaciated plateau above elevations of 2,200 feet. Slopes range from 3 to 15 percent.

Knapp Creek soils are associated with Carrollton, Ceres, Eldred, Flatiron, Elko, Kinzua, and Mandy soils. They are deeper over bedrock and contain less clay in the subsoil than Carrollton and Mandy soils, and do not have a fragipan that is typical of Elko soils. They have a higher sand content than Eldred, Kinzua, or Ceres soils, and do not have the red colors that are typical of Ceres soils. They have a higher gravel content than the Flatiron soils.

Typical pedon of Knapp Creek, from a unit of Knapp Creek-Rock outcrop complex, 3 to 15 percent slopes; in the town of Olean; 3.5 miles northeast of the village of Knapp Creek, 1,400 feet north of Two Mile Road and NY Route 16, 800 feet southeast of NY Route 16:

- Oe—0 to 3 inches; black (10YR 2/1) partially decomposed hardwood leaf litter; many fine, medium and coarse roots; abrupt smooth boundary.
- E—3 to 11 inches; pinkish gray (5YR 6/2) gravelly loamy sand; single grain, loose; common coarse to fine roots; 25 percent rock fragments, of which 10 percent is subrounded quartz pebbles 1 to 2 inches in diameter, 5 percent is subrounded sandstone conglomerate and 10 percent sandstone conglomerate greater than 3 inches; extremely acid; abrupt wavy boundary.
- Bw1—11 to 16 inches; strong brown (7.5YR 5/8) gravelly sandy loam; weak medium subangular blocky structure; very friable; common fine and medium roots; few fine tubular discontinuous pores; continuous dark reddish brown (5YR 3/2) slightly cemented Bhs horizon less than one inch thick located at the top of the horizon; 25 percent rock fragments, of which 10 percent is subrounded quartz pebbles 0.5 to 3 inches in diameter, 10 percent subrounded sandstone conglomerate and 5 percent sandstone conglomerate greater than 3 inches; extremely acid; clear wavy boundary.
- Bw2—16 to 22 inches; brownish yellow (10YR 6/6) very gravelly sandy loam; weak medium subangular blocky structure; very friable; common fine and medium roots; few fine tubular discontinuous pores; 40 percent rock fragments, of which 20 percent is subrounded quartz pebbles 0.5 to 3 inches in diameter, 10 percent

- subrounded sandstone conglomerate and 10 percent sandstone conglomerate greater than 3 inches; very strongly acid; clear wavy boundary.
- BC—22 to 48 inches; 50 percent yellowish brown (10YR 5/6) and 50 percent brownish yellow (10YR 6/6) extremely gravelly sandy loam; weak medium subangular blocky structure parting to single grain; very friable; few fine and medium roots; 70 percent rock fragments, of which 5 percent is subrounded quartz pebbles 0.5 to 3 inches in diameter, 45 percent subrounded sandstone conglomerate and 20 percent sandstone conglomerate greater than 3 inches; very strongly acid; gradual smooth boundary.
- Cr—48 to 58 inches; pale yellow (2.5Y 7/4) extremely gravelly sandy loam, highly weathered sandstone conglomerate matrix with quartz pebbles 0.5 to 3 inches in diameter; 80 percent rock fragments; very strongly acid, abrupt smooth boundary.
- R—58 inches; Olean conglomerate, sandstone matrix with quartz pebbles 0.5 to 3 inches in diameter.

The thickness of the solum ranges from 25 to 50 inches. The depth to bedrock is 40 to 60 inches or more. The content of rock fragments, consisting dominantly of subrounded quartz and sandstone, ranges by volume, from 5 to 70 percent in individual horizons of the solum, and from 35 to 80 percent in the substratum. In some pedons, boulders, stones, and channers cover 5 to 60 percent of the surface. Reaction ranges from strongly acid to extremely acid throughout the profile.

The A horizon, where it occurs, has hue of 7.5YR or 10YR, value of 2 to 4, and chroma of 1 to 4. The texture of the fine earth fraction is loamy sand, sandy loam, fine sandy loam or loam.

The E horizon has hue of 5YR to 10YR, value of 4 to 7 and chroma of 1 to 4. The texture is loamy sand, sandy loam, or fine sandy loam in the fine earth fraction. Structure is weak, fine to medium granular, or it is single grain. Consistence is very friable or loose.

The Bw horizon has hue of 5YR to 10YR, value of 3 to 6, and chroma of 3 to 8. The texture is loamy sand, sandy loam, fine sandy loam or loam in the fine earth fraction. Structure is weak or moderate, fine or medium, subangular blocky or granular. Consistence is very friable or friable.

The BC horizon has hue of 5YR to 2.5Y, value of 3 to 6, and chroma of 3 to 8. The textures range from loam to loamy sand in the fine earth fraction. Structure is weak subangular blocky, single grain or the material is massive. Consistence is very friable or friable.

Some pedons may have a Cr horizon of highly weathered sandstone conglomerate matrix with quartz pebbles. The textures range from loam to loamy sand.

## **Lamson Series**

The Lamson series consists of very deep, poorly drained, nearly level soils in slightly depressional areas of former glacial lake plains and deltas. These soils formed in lake-laid deposits dominated by very fine sand and fine sand. Slopes range from 0 to 3 percent.

Lamson soils are in a drainage sequence that includes the well drained Colonie soils, the moderately well drained Elnora soils, and the somewhat poorly drained Minoa soils. They are associated with Getzville, Tonawanda, Canandaigua and Halsey soils. They are sandier than the silty Canandaigua soils, and are wetter and contain more sand than Tonawanda soils. They do not have the finer-textured silty mantle that is typical of Getzville soils, and they do not have the gravel content that is characteristic of Halsey soils.

Typical pedon of Lamson very fine sandy loam; in the town of Dayton; 50 feet south of NY 322, 1/4 mile west of NY 322 and NY 62:

Ap—0 to 9 inches; very dark gray (10YR 3/1) very fine sandy loam, light brownish gray (10YR 6/2) dry; weak medium granular structure; very friable; slightly acid; abrupt smooth boundary.

- E—9 to 16 inches; pale brown (10YR 6/3) very fine sandy loam; weak medium granular structure; very friable; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation and gray (10YR 5/1) iron depletions; slightly acid; gradual smooth boundary.
- Bg—16 to 25 inches; gray (10YR 5/1) fine sandy loam; weak medium subangular blocky structure; very friable; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation and light brownish gray (10YR 6/2) iron depletions; slightly acid; gradual smooth boundary.
- Bw—25 to 35 inches; brown (10YR 5/3) fine sandy loam; weak medium subangular blocky structure; very friable; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation and gray (10YR 5/1) iron depletions; neutral; clear smooth boundary.
- C1—35 to 55 inches; dark grayish brown (10YR 4/2) loamy fine sand; massive; very friable; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation; neutral; gradual smooth boundary.
- C2—55 to 72 inches; dark grayish brown (10YR 4/2) layers of fine sandy loam and loamy fine sand; massive; very friable; slightly alkaline; slightly effervescent.

The thickness of the solum ranges from 30 to 50 inches. The depth to bedrock or to contrasting material is more than 60 inches. The depth to carbonates ranges from 24 to 60 inches. Reaction ranges from moderately acid to slightly alkaline in the surface layer and subsurface layer, and from slightly acid to moderately alkaline in the subsoil and substratum. Rock fragments are commonly absent, but in some pedons, subhorizons may have up to 15 percent.

The Ap horizon has hue of 7.5YR to 2.5Y, value of 2 or 3, and chroma of 0 to 3. The textures are fine sandy loam, loamy very fine sandy loam, very fine sandy loam, loam and silt loam.

The E horizon has hue of 7.5YR to 2.5Y, values of 5 or 6, chroma of 1 to 4. The texture ranges from very fine sandy loam to loamy fine sand. Structure is weak granular, subangular blocky, platy, or single grain.

The B horizon has hue of 5YR to 2.5Y, values of 4 to 6, and chroma of 1 to 4. Texture is very fine sandy loam or fine sandy loam. Structure is weak subangular blocky, platy, prismatic, or the material is massive. Consistence is friable or very friable.

The C horizon has hue of 5YR to 5Y, value of 4 to 7, and chroma of 0 to 4. The texture of the thin layers of varved material ranges from fine sand to silt. This horizon is single grain or the material is massive. Consistence is very friable to firm.

# Langford Series

The Langford series consists of very deep, moderately well drained, gently sloping to moderately steep soils on glaciated uplands. These soils formed in glacial till derived mainly from siltstone, sandstone, shale and some limestone. They have a fragipan starting at a depth of 15 to 28 inches. Slopes range from 3 to 25 percent.

Langford soils are in a drainage sequence that includes the somewhat poorly drained Erie soils. They are associated with Mardin, Schuyler, Ashville and Chautauqua soils. They have a clay accumulation in the subsoil that is not present in Mardin soils, and they commonly are less acid than Mardin soils. Langford soils have a fragipan that is not present in Schuyler and Chautauqua soils, and they have more clay in the subsoil than Chautauqua soils. Langford soils are better drained than Ashville soils, and they have a fragipan that is not present in Ashville soils.

Typical pedon of Langford channery silt loam, 3 to 8 percent slopes; in the town of Yorkshire; on north side of California Road, 1,900 feet east of California Road and Weaver Road:

- Ap—0 to 7 inches; dark grayish brown (10YR 4/2) channery silt loam; moderate fine granular structure; very friable; many fine roots; 15 percent rock fragments; slightly acid; abrupt smooth boundary.
- Bw—7 to 21 inches; yellowish brown (10YR 5/4) silt loam; weak fine and medium subangular blocky structure; very friable; many fine and few medium roots; 5 percent rock fragments; strongly acid; clear wavy boundary.
- E—21 to 25 inches; brown (10YR 5/3) silt loam; weak coarse prismatic parting to moderate medium subangular blocky structure; friable; common fine and medium roots; pale brown (10YR 6/3) silt coats on ped surfaces; many medium distinct strong brown (7.5YR 5/6) masses of iron accumulation and light brownish gray (2.5Y 6/2) iron depletions; 10 percent rock fragments; moderately acid; clear irregular boundary.
- Bx—25 to 34 inches; dark yellowish brown (10YR 4/4) channery silt loam; weak very coarse prismatic parting to moderate medium to coarse subangular blocky structure; firm, brittle; few fine roots on ped surfaces; gray (10YR 6/1) ped coats with few clay films on all faces of peds; common medium distinct strong brown (7.5YR 5/6) masses of iron accumulation and gray (10YR 6/1) iron depletions; 15 percent rock fragments; slightly acid; clear wavy boundary.
- BC—34 to 44 inches; brown (10YR 5/3) gravelly silt loam; weak very coarse prismatic parting to weak coarse subangular blocky structure; firm; gray (10YR 5/1) ped coats with few clay films on all faces of peds and on surfaces along pores; few medium and coarse distinct gray (10YR 6/1) iron depletions; dark brown (7.5YR 3/2) manganese concretions; 20 percent rock fragments; neutral; gradual wavy boundary.
- C—44 to 72 inches brown (10YR 4/3) gravelly silt loam; massive; firm; common fine distinct yellowish brown (10YR 5/6) masses of iron accumulation and light brownish gray (10YR 6/2) iron depletions; 15 percent rock fragments; slightly alkaline; slightly effervescent in the lower part.

The thickness of the solum ranges from 34 to 60 inches. The depth to carbonates is 36 to 65 inches. Depth to the top of the fragipan ranges from 15 to 28 inches. The depth to bedrock is more than 60 inches. The content of rock fragments consisting mainly of gravel, channers, and flagstones ranges, by volume, from 5 to 35 percent above the fragipan, and from 15 to 60 percent in the fragipan and substratum. Reaction ranges from very strongly acid to slightly acid in the surface layer, from strongly acid to neutral in the Bw and E horizon, from strongly acid to slightly alkaline in the fragipan, and from neutral to moderately alkaline in the substratum.

The Ap horizon has hue of 10YR or 2.5Y, value of 3 to 5, and chroma of 2 or 3. The texture is fine sandy loam, loam or silt loam in the fine earth fraction.

The Bw horizon has hue of 7.5YR to 2.5Y, value of 4 to 6, and chroma of 3 to 6. The texture is loam, silt loam or silty clay loam in the fine earth fraction. Structure is weak to moderate subangular blocky, platy or granular. Consistence is friable or very friable.

The E horizon has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 2 or 3. The texture is loam, silt loam or silty clay loam in the fine earth fraction. Consistence is friable or firm.

The Bx horizon has hue of 7.5YR to 5Y, value of 3 to 5, and chroma of 2 to 4. The texture is loam, silt loam or silty clay loam in the fine earth fraction. Structure is very coarse prismatic that commonly parts to subangular blocky, or the material is massive. Consistence is firm or very firm and the material is brittle.

The BC horizon has colors and textures similar to that of the Bx horizon. Structure is very coarse prismatic that commonly parts to subangular blocky, or the material is massive within the prisms. Consistence is firm or very firm.

The C horizon has hue of 7.5YR to 2.5Y, value of 3 to 5, and chroma of 2 to 4. The texture is loam, silt loam or silty clay loam in the fine earth fraction. The material is massive, or has plate like divisions. Consistence is firm or very firm.

# Mandy Series

The Mandy series consists of moderately deep, well drained, gently sloping to very steep soils that formed in material weathered from interbedded siltstone, sandstone and shale. Bedrock is at a depth of 20 to 40 inches. The soils are on hilltops and side slopes where the topography is influenced by the underlying bedrock, at elevations above 1,800 feet. Slopes range from 3 to 50 percent.

Mandy soils are associated with Carrollton, Kinzua, Elko, Eldred, and Onoville soils. They have more rock fragments in the subsoil than Carrollton soils. Mandy soils have bedrock at a depth of 20 to 40 inches, but Kinzua and Eldred soils have bedrock at a depth of more than 40 inches. They do not have the fragipan that is typical of deeper Elko and Onoville soils.

Typical pedon of Mandy channery silt loam, 15 to 25 percent slopes; in the town of Little Valley; on Kyler Hill Road, 1,000 feet northwest of the junction of Kyler Hill Road and Liebler Road:

- A—0 to 2 inches; very dark brown (10YR 2/2) channery silt loam; moderate fine granular structure; very friable; many fine and medium roots; 20 percent coarse fragments; very strongly acid; abrupt wavy boundary.
- Bw1—2 to 13 inches; strong brown (7.5YR 5/6) channery silt loam; moderate fine subangular blocky structure; very friable; common fine and medium roots; 30 percent rock fragments; very strongly acid; clear wavy boundary.
- Bw2—13 to 24 inches; yellowish brown (10YR 5/6) very channery silt loam; moderate medium subangular blocky structure; friable; common fine and medium roots; 50 percent rock fragments; very strongly acid; clear wavy boundary.
- BC—24 to 33 inches; yellowish brown (10YR 5/4) extremely flaggy silt loam; weak medium granular structure; very friable; few fine roots; 65 percent rock fragments; strongly acid; clear wavy boundary.
- R—33 inches; well-fractured siltstone and sandstone bedrock.

The thickness of the solum ranges from 20 to 33 inches. The depth to bedrock ranges from 20 to 40 inches. The content of rock fragments ranges, by volume, from 10 to 25 percent in the surface and subsurface layers, from 20 to 70 percent in the subsoil, and from 60 to 90 percent of the substratum. Reaction ranges from extremely acid to strongly acid throughout the profile.

The A horizon has hue of 10YR or 7.5YR, value and chroma of 2 to 4. The texture in the fine earth fraction is silt loam or loam.

The Bw horizon has hue of 10YR or 7.5YR, value of 5 or 6, and chroma of 4 to 6. The texture in the fine earth fraction is silt loam or loam. Structure is weak or moderate, fine or medium subangular blocky. Consistence is very friable or friable.

The BC horizon has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 3 to 8. The texture in the fine earth fraction is silt loam or loam. Consistence is very friable or friable.

### **Manlius Series**

The Manlius series consists of moderately deep, well drained, very steep soils that formed in glacial till derived mainly from acid shale. Bedrock, consisting mainly of

shale and siltstone, is at a depth of 20 to 40 inches. These soils are in areas of hilltops and side slopes where the topography is influenced by the underlying bedrock. Slopes range from 35 to 70 percent.

Manlius soils are associated with Chadakoin, Chenango, Dunkirk, Hudson, Langford, and Valois soils. Manlius soils have bedrock at a depth of 20 to 40 inches, while Chadakoin, Chenango, Dunkirk, Hudson, Langford, and Valois soils all have bedrock at a depth of more than 40 inches. Additionally, Manlius soils do not have the fragipan that is typical of the wetter Langford soils; do not have the high silt and clay content that is typical of Dunkirk and Hudson soils; do not have the gravel and sand content that is typical of Chenango and Valois soils; and, have more rock fragments than Chadakoin soils.

Typical pedon of Manlius channery silt loam, from a unit of Rock Outcrop-Manlius complex, 35 to 70 percent slopes; in the town of Otto; 1,600 feet east of Forty Road and Wickham Road, 1,070 yards north of Wickham Road:

- A—0 to 4 inches; dark grayish brown (10YR 4/2) channery silt loam; weak medium and fine granular structure; friable; many fine roots; 20 percent rock fragments; strongly acid; clear smooth boundary.
- Bw1—4 to 12 inches; brown (10YR 5/3) channery silt loam; weak fine subangular blocky structure; friable; common fine roots; 30 percent rock fragments; strongly acid; clear wavy boundary.
- Bw2—12 to 23 inches; yellowish brown (10YR 5/4) very channery silt loam; weak very fine granular structure; friable; few fine roots; 40 percent rock fragments; very strongly acid; gradual wavy boundary.
- C—23 to 34 inches; brown (10YR 4/3) very channery silt loam; massive; friable; 50 percent rock fragments; strongly acid; abrupt wavy boundary.
- 2R—34 inches, very dark grayish brown (2.5Y 3/2) shale bedrock.

The thickness of the solum ranges from 15 to 35 inches. The depth to bedrock ranges from 20 to 40 inches. The content of rock fragments, consisting mainly of shale with some siltstone and sandstone channers, ranges by volume, from 15 to 40 percent in the surface layer, from 25 to 60 percent in the subsoil, and from 30 to 70 percent in the substratum. Reaction ranges from extremely acid to moderately acid in the solum and from very strongly acid to slightly acid in the substratum.

The A horizon has hue of 7.5YR to 2.5Y, value of 3 or 4 and chroma of 2 or 3. The texture of the fine earth fraction is loam or silt loam. Structure is medium or fine granular, or subangular blocky parting to granular. Consistence is friable or very friable.

The Bw horizon has hue of 10YR to 5Y, value of 4 to 6, and chroma of 3 to 6. The texture of the fine earth fraction is loam or silt loam. Structure is granular or subangular blocky. Consistence ranges from very friable to firm.

The C horizon has hue of 10YR to 5Y, value of 4 or 5, and chroma of 2 to 4. The texture of the fine earth fraction is loam or silt loam. Consistence ranges from loose to firm.

The 2R horizon is dominantly shale, or shale interbedded with siltstone bedrock.

#### **Mardin Series**

The Mardin series consist of very deep, moderately well drained gently sloping to moderately steep soils on upland plateaus. These soils formed in firm glacial till derived from siltstone, sandstone and shale. Slopes range from 3 to 25 percent.

Mardin soils are in a drainage sequence that includes the somewhat poorly drained Volusia soils and the poorly drained Chippewa soils. They are associated with Langford, Chadakoin, Towerville, Schuyler, and Valois soils. They have a fragipan that is not present in the Schuyler, Chadakoin, Towerville, and Valois soils. They are

deeper over bedrock than Towerville soils and are wetter than Chadakoin and Valois soils. They do not have the clay accumulation in the subsoil that is typical of Langford soils and are more acid.

Typical pedon of Mardin channery silt loam, 3 to 8 percent slopes; in the town of Farmersville; it is 200 feet south of Hess Road, and 100 feet east of junction with Huyck Road:

- Ap—0 to 6 inches; dark grayish brown (10YR 4/2) channery silt loam; weak fine and medium granular structure; very friable; many fine and common medium roots; 15 percent rock fragments; strongly acid; clear smooth boundary.
- Bw—6 to 14 inches; yellowish brown (10YR 5/6) silt loam; moderate fine and medium subangular blocky structure; friable; common fine and few medium roots; 10 percent rock fragments; strongly acid; clear wavy boundary.
- E—14 to 17 inches; light yellowish brown (2.5Y 6/3) silt loam; weak medium platy structure; friable; few fine roots; common fine pores; common medium distinct strong brown (7.5YR 5/6) masses of iron accumulation and gray (10YR 6/1) iron depletions; 10 percent rock fragments; strongly acid; abrupt irregular boundary.
- Bx1—17 to 29 inches; olive brown (2.5Y 4/4) channery silt loam; moderate very coarse prismatic parting to weak medium subangular blocky structure; firm, brittle; peds coated with strong brown (7.5YR 5/8) and light brownish gray (2.5Y 6/2) seams separating prisms; common medium distinct strong brown (7.5YR 5/6) masses of iron accumulation and few medium distinct gray (10YR 5/1) iron depletions; 15 percent rock fragments; strongly acid; gradual wavy boundary.
- Bx2—29 to 41 inches; olive brown (2.5Y 4/4) channery silt loam; weak very coarse prismatic structure; very firm, slightly brittle; yellowish brown (10YR 5/6) and gray (10YR 6/1) material between prisms; few clay films on faces of peds; common medium distinct strong brown (7.5YR 5/6) masses of iron accumulation; 15 percent rock fragments; moderately acid; gradual wavy boundary.
- C—41 to 72 inches; grayish brown (2.5Y 5/2) channery silt loam; massive; firm; common medium distinct dark yellowish brown (10YR 4/4) masses of iron accumulation; 20 percent rock fragments; moderately acid.

The thickness of the solum ranges from 38 to 72 inches. The depth to bedrock is more than 60 inches. The depth to the top of the fragipan ranges from 14 to 26 inches. The content of rock fragments ranges, by volume, from 5 to 35 percent above the fragipan and from 15 to 60 percent in the fragipan and substratum. Reaction ranges from very strongly acid to moderately acid in the horizons above the fragipan. It ranges from very strongly acid to slightly acid in the fragipan, and from strongly acid to neutral in the substratum.

The Ap horizon has hue of 7.5YR to 2.5Y, value of 3 or 4, and chroma of 2 to 4. The texture is silt loam in the fine earth fraction.

The Bw horizon has hue of 7.5YR to 2.5Y, value of 4 to 6, and chroma of 3 to 8. Structure is weak or moderate, fine or medium, subangular blocky or granular. Consistence is very friable or friable. The texture is loam or silt loam in the fine earth fraction.

The E horizon has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 2 or 3. The texture is loam or silt loam in the fine earth fraction. Structure is weak medium platy or subangular blocky. Consistence is friable or firm.

The Bx horizon has hue of 7.5YR to 5Y, value of 3 to 5, and chroma of 2 to 4. It has faint to prominent redoximorphic features. The texture is loam or silt loam in the fine earth fraction. Structure is weak to strong, very coarse prismatic. Consistence is firm or very firm.

The C horizon has colors and textures similar to those of the Bx horizon. Structure is weak, thin plate-like divisions, or the material is massive. Consistence is firm or very firm.

# Middlebury Series

The Middlebury series consists of very deep, moderately well drained, nearly level soils on flood plains and alluvial fans. These soils formed in alluvium derived from upland soils that have a high content of sandstone, siltstone and shale. Slopes range from 0 to 3 percent.

Middlebury soils are in a drainage sequence that includes the well drained Tioga soils, the somewhat poorly drained Holderton soils, and the poorly drained Wayland soils. They are associated with Unadilla and Scio soils. They have a higher content of fine sand than Unadilla and Scio soils. They are also associated with Chenango and Castile soils on nearby terraces but do not have the high gravel content that is typical of these soils.

Typical pedon of Middlebury silt loam; in the town of Allegany; 1/4 mile south of the junction of County Route 61 and County Route 60, 1,200 feet east of County Route 60:

- Ap—0 to 8 inches; dark grayish brown (10YR 4/2) silt loam; moderate fine and medium granular structure; friable; many fine roots; 5 percent rock fragments; moderately acid; abrupt smooth boundary.
- Bw1—8 to 22 inches; brown (10YR 4/3) loam; weak medium subangular blocky structure; friable; common fine roots; moderately acid; clear wavy boundary.
- Bw2—22 to 30 inches; yellowish brown (10YR 5/4) silt loam; weak medium subangular blocky structure; friable; strong brown (7.5YR 5/8) masses of iron accumulation and grayish brown (10YR 5/2) iron depletions in the matrix; moderately acid; clear wavy boundary.
- C1—30 to 48 inches; yellowish brown (10YR 5/4) very fine sandy loam; massive; very friable; strong brown (7.5YR 5/8) masses of iron accumulation in the matrix; moderately acid; clear wavy boundary.
- C2—48 to 72 inches; yellowish brown (10YR 5/4) fine sandy loam; massive; very friable; moderately acid.

The thickness of the solum ranges from 15 to 45 inches. The depth to bedrock is more than 60 inches. The content of rock fragments ranges, by volume, from 0 to 20 percent in the soil to a depth of 40 inches and from 0 to 50 percent below this depth. Reaction ranges from strongly acid to slightly acid in the surface layer and from moderately acid to neutral in the subsoil and substratum.

The Ap horizon has hue of 10YR or 2.5Y, value of 3 or 4, and chroma of 2 or 3. The texture is loam, fine sandy loam or silt loam in the fine earth fraction.

The Bw horizon has hue of 7.5YR to 5Y, value of 3 to 5, and chroma of 2 to 4. High chroma redoximorphic features may occur in all horizons in some pedons. Low chroma redoximorphic features are the B horizons within a depth of 24 inches. The texture is very fine sandy loam, fine sandy loam, loam or silt loam in the fine earth fraction. Structure is weak or moderate, fine to coarse subangular blocky or prismatic. Consistence is friable or very friable.

The C horizon has hue of 7.5YR to 5Y, value of 4 to 6, and chroma of 1 to 4. The texture ranges from loam to fine sandy loam in the fine earth fraction above a depth of 40 inches, and includes stratified sand and gravel below this depth. Consistence is very friable to firm.

### **Minoa Series**

The Minoa series consists of very deep, somewhat poorly drained, nearly level soils on remnant deltas and beaches on the lake plains of former glacial lakes. These soils formed in lake-laid deposits that have a high content of very fine sand or fine sand. Slopes range from 0 to 3 percent.

Minoa soils are in a drainage sequence that includes poorly drained Lamson soils. They are associated with Niagara, Tonawanda, Canandaigua, and Halsey soils. They contain less clay and silt than Niagara and Tonawanda soils. They are better drained than the silty Canandaigua soils and Halsey soils. They do not have the gravel content that is typical of Halsey soils.

Typical pedon of Minoa very fine sandy loam, 0 to 3 percent slopes; in the town of Leon; 1/4 mile south of Chicken Road and Xura Road, 100 yards west of Chicken Road:

- Ap—0 to 9 inches; very dark grayish brown (10YR 3/2) very fine sandy loam; weak fine granular structure; friable; common fine roots; less than 2 percent rock fragments; moderately acid; abrupt smooth boundary.
- Bw1—9 to 20 inches; brown (10YR 5/3) fine sandy loam; weak fine subangular blocky structure; friable; common fine roots; very dark grayish brown (10YR 3/2) worm and root channels; common medium distinct strong brown (7.5YR 5/6) masses of iron accumulation and grayish brown (10YR 5/2) iron depletions; less than 2 percent rock fragments; slightly acid; gradual wavy boundary.
- Bw2—20 to 32 inches; yellowish brown (10YR 5/4) fine sandy loam; weak medium subangular blocky structure; very friable; dark grayish brown (10YR 4/2) worm and root channels; common medium distinct strong brown (7.5YR 5/6) masses of iron accumulation and grayish brown (10YR 5/2) iron depletions; less than 2 percent rock fragments; slightly acid; clear wavy boundary.
- BC—32 to 36 inches; grayish brown (10YR 5/2) sandy loam; massive; loose; two bands of lamellae 1 inch thick of dark grayish brown (10YR 4/2) fine sandy loam; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation; less than 2 percent rock fragments; slightly acid; clear wavy boundary.
- C—36 to 72 inches; grayish brown (10YR 5/2) weakly stratified fine sandy loam and fine sands; massive; loose; less than 2 percent rock fragments; neutral, slightly alkaline at 68 inches.

The thickness of the solum ranges from 20 to 40 inches. The depth to bedrock is more than 60 inches. The depth to carbonates is 40 to 72 inches. The content of rock fragments ranges, by volume, from 0 to 5 percent throughout the profile. Reaction ranges from strongly acid to neutral in the surface layer, from moderately acid to neutral in the subsoil, and moderately acid to moderately alkaline in the substratum.

The Ap horizon has hue of 5YR to 2.5Y, value of 3 or 4 and chroma of 2 or 3. The texture is silt loam to loamy very fine sand.

The Bw horizon has hue of 5YR to 2.5Y, value of 4 to 6, and chroma of 2 to 4. The texture is very fine sandy loam, fine sandy loam or silt loam. This horizon has few to many, high and low chroma redoximorphic features. Structure is weak granular, subangular blocky or the material is massive. Consistence is very friable to firm.

The BC horizon has colors similar to those of the B horizon. Texture is silt loam through loamy very fine sand. Structure is weak, granular, subangular blocky or platy. Consistence is loose to firm.

The C horizon has hue of 5YR to 2.5Y, values of 4 to 6, and chroma of 1 to 4. The texture ranges from silt loam to loamy fine sand and includes thin layers of silty clay loam to fine sand. Consistence is loose to firm.

## Mongaup Series

The Mongaup series consists of moderately deep, well drained, gently sloping to very steep soils on bedrock controlled benches, hilltops, valley sides and on other side slopes of upland plateau, above elevations of 1,800 feet. These soils formed in a thin mantle of glacial till underlain by sandstone, siltstone and shale bedrock at a depth of 20 to 40 inches. Slopes range from 3 to 70 percent.

Mongaup soils are associated with Almond, Hornellsville, Ischua, Salamanca, Willdin, and Yorkshire soils. They contain less clay than Hornellsville and Ischua soils, and are not as deep over bedrock as Salamanca soils. They do not have the fragipan that is typical of Willdin and Yorkshire soils, and are better drained than Almond soils.

Typical pedon of Mongaup channery silt loam, 8 to 15 percent slopes; in the town of Farmersville; 0.6 mile south of Bush Hill Road, about 700 feet west of Stebbins Road:

- A—0 to 4 inches; very dark grayish brown (10YR 3/2) channery silt loam; moderate fine granular structure; very friable; many fine and common medium roots; 20 percent rock fragments; strongly acid; clear wavy boundary.
- Bw1—4 to 8 inches; strong brown (7.5YR 5/6) channery silt loam; moderate very fine subangular blocky structure; very friable; common fine and medium roots; 15 percent rock fragments; strongly acid; clear wavy boundary.
- Bw2—8 to 16 inches; yellowish brown (10YR 5/4) channery silt loam; weak fine and medium subangular blocky structure; friable; common fine and few medium roots; 20 percent rock fragments; strongly acid; clear wavy boundary.
- Bw3—16 to 27 inches; brown (10YR 5/3) channery silt loam; weak medium subangular blocky structure; friable; few fine roots in upper part; 25 percent rock fragments; strongly acid; abrupt smooth boundary.
- 2R-27 inches; hard grayish sandstone and siltstone bedrock.

The thickness of the solum and depth to bedrock ranges from 20 to 40 inches. The content of rock fragments ranges, by volume, from 5 to 35 percent in the upper part of the solum and from 5 to 50 percent in the lower part of the subsoil and substratum. Reaction is extremely acid to strongly acid in the surface layer and upper part of the subsoil, and extremely acid to moderately acid in the lower part of the subsoil and substratum.

The A horizon has hue of 5YR to 10YR, value of 2 to 4, and chroma of 0 to 4. The texture is sandy loam to silt loam in the fine earth fraction.

The Bw horizons has hue of 2.5YR to 2.5Y, value of 3 to 5, and chroma of 2 to 6. The texture is sandy loam to silt loam in the fine earth fraction. Structure is weak or moderate subangular blocky.

The C horizon, where it occurs, has colors and textures similar to those of the B horizon. The material is massive or has plate like divisions.

The 2R layer is commonly hard horizontally bedded sandstone with thinner beds of siltstone or shale.

## Napoli Series

The Napoli series consists of very deep, somewhat poorly drained, nearly level to moderately steep soils on till plains and upland plateaus at elevations above 1,800 feet. These soils formed in glacial till derived mainly from siltstone, sandstone, and shale. Slopes range from 0 to 25 percent.

The Napoli soils are in a drainage sequence that includes the moderately well drained Yorkshire soils. They are associated with Almond, Ischua, Gretor, Salamanca, and Willdin soils. They are deeper to bedrock than Ischua and Gretor soils, and are also wetter than the Ischua, Salamanca, and Willdin soils. They have a fragipan that is lacking in the Almond and Salamanca soils.

Typical pedon of Napoli silt loam, 3 to 8 percent slopes; in the town of Lyndon; 1,500 feet north of County Route 24, and 20 feet west of South Center Road:

Ap—0 to 9 inches; very dark grayish brown (10YR 3/2) silt loam, light brownish gray (10YR 6/2) dry; moderate fine granular structure; friable; many fine roots; 10 percent rock fragments; very strongly acid; abrupt smooth boundary.

Bw—9 to 15 inches; dark yellowish brown (10YR 4/4) silty clay loam; weak fine subangular blocky structure; very friable; common fine roots; few fine prominent strong brown (7.5YR 5/8) masses of iron accumulations and few fine distinct light brownish gray (10YR 6/2) iron depletions; 10 percent rock fragments; very strongly acid; clear wavy boundary.

- Eg—15 to 23 inches; grayish brown (10YR 5/2) silt loam; moderate medium subangular blocky structure; friable; few fine roots; common medium prominent strong brown (7.5YR 5/8) masses of iron accumulations, and common medium faint light brownish gray (10YR 6/2) iron depletions; 10 percent rock fragments; very strongly acid; clear wavy boundary.
- Btx1—23 to 33 inches, dark yellowish brown (10YR 4/4) channery silt loam; moderate very coarse prismatic structure that parts to weak medium subangular blocky structure; firm, brittle; grayish brown (10YR 5/2) ped faces; common distinct clay films on surfaces along pores and on all faces of peds; many dark manganese concretions; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation within peds, and light brownish gray (10YR 6/2) iron depletions; 25 percent rock fragments, 5 percent greater than 3 inches; very strongly acid; clear wavy boundary.
- Btx2—33 to 46 inches, brown (10YR 4/3) channery silty clay loam; moderate very coarse prismatic structure that parts to moderate medium subangular blocky; firm, brittle; grayish brown (10YR 5/2) ped faces; common distinct clay films on surfaces along pores and on all faces of peds; many dark manganese concretions; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulations, and light brownish gray (10YR 6/2) iron depletions; 30 rock fragments, 10 percent larger than 3 inches; strongly acid; clear wavy boundary.
- C—46 to 72 inches, grayish brown (2.5Y 5/2) channery silty clay loam; massive; firm; common medium distinct light olive brown (2.5Y 5/4) and brown (10YR 4/3) masses of iron accumulations; 30 percent rock fragments, 10 percent larger than 3 inches; slightly acid.

The thickness of the solum ranges from 30 to 75 inches. The depth to bedrock is more than 60 inches. The depth to the top of the fragipan is 12 to 27 inches. The content of rock fragments consisting mainly of channers and flagstones ranges, by volume, from 5 to 35 percent in the surface layer, from 10 to 45 percent in the upper part of the subsoil, from 15 to 45 percent in the lower part of the subsoil, and from 20 to 60 percent in the substratum. Reaction ranges from very strongly acid to slightly acid in the surface layer, from very strongly acid to moderately acid in the upper subsoil, from very strongly acid to slightly acid in the fragipan, and from strongly acid through neutral in the substratum.

The Ap horizon has hue of 10YR or 2.5Y, value of 3 or 4, and chroma of 2 or 3. The texture is silt loam or silty clay loam in the fine earth fraction.

The Bw horizon has hue of 7.5YR to 2.5Y, value of 4 to 6, and chroma of 3 or 4 with distinct or prominent redoximorphic features. The texture is silt loam, silty clay loam or clay loam in the fine earth fraction. Structure is weak or moderate subangular blocky or granular. Consistence is very friable or friable.

The Eg horizon has hue of 7.5YR to 2.5Y, value of 5 or 6, and chroma of 2 or 3. The texture is silt loam or silty clay loam in the fine earth fraction. Structure is weak or moderate subangular blocky or platy.

The Btx horizon has hue of 7.5YR to 5Y, value of 4 to 6, and chroma of 2 to 6. The texture is silt loam, loam, silty clay loam or clay loam in the fine earth fraction. Structure is prismatic or blocky. Consistence is firm or very firm, and is brittle or slightly brittle.

The C horizon has hue of 5YR to 5Y, value of 3 to 6, and chroma of 2 to 6. The texture of the fine earth fraction is loam, silt loam, silty clay loam, or clay loam with

silty clay in some subhorizons. The material is massive or has plate-like divisions. Consistence is firm or very firm.

# **Niagara Series**

The Niagara series consists of very deep, somewhat poorly drained, nearly level to gently sloping soils that are on the lake plains. These soils formed in silty lacustrine sediment that was deposited in former glacial lakes. Slopes range from 0 to 8 percent.

Niagara soils are in a drainage sequence that includes the well drained Dunkirk soils, the moderately well drained Collamer soils, and the poorly drained or very poorly drained Canandaigua soils. They are in landscape positions similar to those of Tonawanda, Barcelona, Rhinebeck, and Minoa soils. They have a higher clay content in the subsoil than the silty Tonawanda soils. They do not have the sandy subsoil that is typical of Minoa soils and have a lower clay content than Rhinebeck soils. They do not have the gravelly or shale subsoil that is typical of Barcelona soils.

Typical pedon of Niagara silt loam, 0 to 3 percent slope; in the town of East Otto; 0.2 mile north of Swamp Road and Harvey Road, 60 feet west of Harvey Road:

- Ap—0 to 8 inches; very dark grayish brown (10YR 3/2) silt loam, light brownish gray (10YR 6/2) dry; weak medium fine granular structure; friable; many fine roots; neutral; abrupt smooth boundary.
- BE—8 to 12 inches; brown (10YR 4/3) silt loam; weak medium subangular blocky structure; friable; common fine roots; neutral; clear and smooth boundary.
- Bt1—12 to 16 inches; grayish brown (10YR 5/2) silty clay loam; moderate medium subangular blocky structure; firm; common fine roots; light brownish gray (10YR 6/2) ped coats; distinct clay films on all faces of peds; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation and light brownish gray (10YR 6/2) iron depletions; neutral; clear smooth boundary.
- Bt2—16 to 24 inches; brown (10YR 5/3) silt loam; moderate medium subangular blocky structure; firm; few fine roots; light brownish gray (10YR 6/2) clay films on all faces of peds and on surfaces along pores; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation and light brownish gray (10YR 6/2) iron depletions; neutral; clear wavy boundary.
- Bt3—24 to 36 inches; brown (10YR 4/3) silty clay loam; moderate medium subangular blocky structure; firm; light brownish gray (10YR 6/2) clay films on all faces of peds and on surfaces along pores; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation and grayish brown (10YR 5/2) iron depletions; slightly alkaline, slightly effervescent; clear wavy boundary.
- C—36 to 72 inches; brown (10YR 4/3) silt loam; massive; firm; common medium distinct light brownish gray (10YR 6/2)iron depletions; moderately alkaline, strongly effervescent.

The thickness of the solum ranges from 20 to 40 inches. The depth to bedrock is more than 60 inches. Depth to carbonates ranges from 20 to 50 inches. Rock fragments commonly do not occur in the profile, but in some pedons they make up as much as 5 percent of the profile. Reaction ranges from strongly acid to neutral in the surface layer, from moderately acid to slightly alkaline in the subsoil, and from neutral to moderately alkaline in the substratum.

The Ap horizon has hues of 10YR or 2.5Y, value of 3 or 4, and chroma of 2 or 3. The texture is very fine sandy loam, loam, or silt loam.

The BE horizon has hue of 7.5YR to 2.5Y, value of 4 or 5, and chroma of 2 to 4. The texture is silt loam, very fine sandy loam, or fine sandy loam. Structure is weak or moderate medium subangular or angular blocky. Consistence is friable or firm.

The Bt horizon has hue of 5YR to 2.5Y, value of 4 or 5, and chroma of 2 to 4 with faint to prominent redoximorphic features. The texture is silt loam, very fine sandy loam or silty clay loam. Structure is weak or moderate medium subangular or angular blocky. Consistence is friable or firm.

The C horizon has hue of 5Y to 2.5Y, value of 3 to 6, and chroma of 0 to 6. The texture of the fine earth fraction is very fine sandy loam, silt loam, or silty clay loam. Consistence is friable to firm.

#### Olean Series

The Olean series consists of very deep, moderately well drained, nearly level or gently sloping soils that formed in a mantle of silty deposits 20 to 40 inches deep over stratified glacial outwash deposits. These soils are on primary terraces along streams and on the higher secondary terraces. Slopes range from 0 to 8 percent.

Olean soils are in a drainage sequence that includes the well drained Allard soils, the somewhat poorly drained Swormville soils, and the poorly drained Getzville soils. They are closely associated with Chenango, Castile, and Unadilla soils and the periodically flooded Tioga and Middlebury soils. They do not have the content of gravel in the subsoil that is characteristic of the Chenango soils or the Castile soils. They are wetter and have more clay in the subsoil than Unadilla soils. They are slightly higher on the landscape than Tioga and Middlebury soils and are usually not subject to flooding.

Typical pedon of Olean silt loam, 0 to 3 percent slopes; in the town of Olean; city of Olean, 250 feet south of Park Street:

- Ap—0 to 9 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; weak fine granular structure; very friable; many fine roots; less than 2 percent rock fragments; strongly acid; abrupt smooth boundary.
- BE—9 to 23 inches; yellowish brown (10YR 5/4) silt loam; weak medium subangular blocky structure; very friable; common roots; less than 2 percent rock fragments; strongly acid; clear smooth boundary.
- Bt—23 to 36 inches; brown (10YR 5/3) silty clay loam; moderate medium and fine subangular blocky structure; friable to slightly firm; few roots; thin few grayish brown (10YR 5/2) clay films on all faces of peds and on surfaces along pores; common medium distinct yellowish brown (10YR 5/8) masses of iron accumulation and light brownish gray (10YR 6/2)iron depletions; less than 2 percent rock fragments; strongly acid; abrupt smooth boundary.
- 2C—36 to 72 inches; brown (10YR 4/3) very gravelly loamy sand; massive; loose; 55 percent rock fragments; strongly acid.

The thickness of the solum and depth to sandy or gravelly deposits range from 20 to 40 inches. The depth to bedrock is more than 60 inches. The content of rock fragments is less than 5 percent, by volume, in the surface layer and subsoil, and range from 0 to 70 percent in the substratum. Rock fragments consist mainly of gravel or cobbles. Reaction ranges from very strongly acid to moderately acid in the solum, and from very strongly acid to neutral in the substratum.

The Ap horizon has hue of 10YR or 7.5YR, value of 3 or 4, and chroma of 2 or 3. The texture is silt loam or very fine sandy loam.

The BE horizon has hue of 7.5YR to 2.5Y, value of 4 to 6, and chroma of 3 to 6. The texture is silt loam or very fine sandy loam. Structure is weak or moderate, fine or medium granular or subangular blocky. Consistence is very friable or friable.

The Bt horizon has hue of 7.5YR to 2.5Y, value of 4 to 6, and chroma of 3 to 6. The texture is silt loam or silty clay loam. Structure is weak or moderate, prismatic or subangular blocky. Consistence is friable or firm.

The 2C horizon has hue of 7.5YR to 2.5Y, value of 3 to 5, and chroma of 2 to 4. Texture is loose loamy sand or sand in the fine earth fraction.

#### **Onoville Series**

The Onoville series consists of very deep, moderately well drained, gently sloping to moderately steep soils on valley sides, side slopes and benches of the unglaciated plateau, at elevations above 1,800 feet. These soils formed in colluvium weathered from interbedded shale, siltstone and fine-grained sandstone. Slopes range from 3 to 25 percent.

Onoville soils are in a drainage sequence that includes the somewhat poorly drained Shongo soils. They are associated with Carrollton, Frewsburg, Kinzua, Eldred, and Elko soils. Onoville soils are deeper over bedrock than Carrollton and Frewsburg soils, and have a fragipan layer which is not present in Kinzua and Eldred soils. They occur on colluvial positions on the landscape while Elko soils occur on summits or hilltops.

Typical pedon of Onoville silt loam, 8 to 15 percent slopes; in the town of Red House; 375 feet north of Bay State Road and 4,010 feet west of English Stoddard Road, in Allegany State Park:

- Ap—0 to 8 inches; dark grayish brown (10YR 4/2) silt loam, light yellowish brown (2.5Y 6/4) dry; moderate medium and fine granular structure; friable; many very fine, common fine and few medium roots; 5 percent rock fragments; very strongly acid; abrupt smooth boundary.
- BE—8 to 16 inches; yellowish brown (10YR 5/4) silt loam; moderate medium and fine subangular blocky structure; friable; few fine distinct strong brown (7.5YR 5/8) masses of iron accumulations and light brownish gray (10YR 6/2) iron depletions within the matrix; common very fine and fine roots, and few medium roots; common fine pores; 5 percent rock fragments; very strongly acid; clear wavy boundary.
- Bt—16 to 22 inches; brown (10YR 5/3) silty clay loam; moderate medium and fine subangular blocky structure; friable; common coarse distinct strong brown (7.5YR 5/8) masses of iron accumulations, and common medium faint light brownish gray (10YR 6/2) iron depletions within the matrix; common very fine and few fine roots; common fine pores; common distinct light brownish gray (10YR 6/2) clay films on all faces of peds and on surfaces along pores; thin stone line at the bottom of this horizon, 10 percent rock fragments; very strongly acid; clear wavy boundary.
- Btx1—22 to 32 inches, yellowish brown (10YR 5/4) channery loam; weak very coarse prismatic structure parting to weak coarse subangular blocky; firm, brittle; many coarse distinct light gray (10YR 7/2) iron depletions and strong brown (7.5YR 5/8) masses of iron accumulations within the matrix; few fine roots along prism faces; many medium and coarse vesicular pores; common distinct clay films on all faces of peds and on surfaces along pores; 20 percent rock fragments; very strongly acid; clear wavy boundary.
- Btx2—32 to 59 inches, yellowish brown (10YR 5/4) channery clay loam; moderate very coarse prismatic structure parting to moderate coarse and medium subangular blocky; very firm, brittle; many coarse distinct gray (10YR 6/1) iron depletions and strong brown (7.5YR 5/8) masses of iron accumulations within the matrix; common fine and medium vesicular pores; many prominent clay films on all faces of peds and on surfaces along pores; common coarse very dark gray (N 3/) Fe-Mn concretions; thin stone line in lower part of horizon; 25 percent rock fragments; very strongly acid; clear wavy boundary.
- Btx3—59 to 65 inches; yellowish brown (10YR 5/6) channery silty clay loam; weak very coarse prismatic structure parting to moderate medium subangular blocky; firm, brittle; common coarse distinct light gray (10YR 7/2)iron depletions within

the matrix; common fine pores; common prominent clay films on all faces of peds and on surfaces along pores; common medium very dark gray (5YR 3/1) Fe-Mn concretions; 20 percent rock fragments; strongly acid; clear wavy boundary.

CB—65 to 72 inches; variegated dark grayish brown (2.5Y 4/2) and yellowish brown (10YR 5/6) channery clay loam; weak very coarse prismatic structure; firm; common medium distinct pinkish gray (7.5YR 7/2) iron depletions within the matrix; common fine prominent very dark gray (5YR 3/1) Fe-Mn concretions; common fine pores; few distinct silt coats in pores; 20 percent rock fragments; strongly acid; clear wavy boundary.

The thickness of the solum ranges from 35 to 70 inches. The depth to bedrock is more than 60 inches. The content of rock fragments, consisting mainly of shale and siltstone, ranges, by volume, from 5 to 35 percent in the surface, 5 to 40 percent in the subsoil, and from 15 to 70 percent in the substratum. Reaction is very strongly acid or strongly acid throughout the profile, with some subhorizons in the substratum being moderately acid.

The A horizon has a hue of 7.5YR or 10YR, value of 3 or 4, and chroma of 2 to 4. The texture in the fine earth fraction is silt loam or loam.

The BE horizon has hue of 7.5YR to 2.5Y, values of 5 or 6, and chroma of 3 to 6. The texture in the fine earth fraction is silt loam, silty clay loam, or loam. Structure is weak or moderate, fine or medium subangular blocky or granular. Consistence is very friable or friable.

The Bt horizon has hue of 7.5YR to 5Y, value of 4 to 6, and chroma of 3 to 6, with low and high chroma redoximorphic features in the upper 10 inches of the horizon. The texture is silt loam, loam, silty clay loam, with subhorizons of silty clay in the fine-earth fraction. Structure is subangular blocky or prismatic. Consistence is friable or firm.

The Btx horizon has hue of 7.5YR to 5Y, value of 4 to 7, and chroma of 2 to 6. The texture in the fine earth fraction is silt loam, loam, silty clay loam and clay loam. Structure is weak or moderate, fine to very coarse subangular blocky or prismatic. Consistence is firm or very firm, brittle or slightly brittle.

The CB horizon has hue of 7.5YR to 5Y, value of 3 to 6, and chroma of 2 to 6. Texture ranges from loam to clay. Consistence is friable or firm. Structure is weak prismatic or weak platy, or the horizon is massive.

## **Orpark Series**

The Orpark series consists of moderately deep, somewhat poorly drained, nearly level to strongly sloping soils on the crests of plateaus and the summits of upland. These soils formed in a thin mantle of glacial till underlain with siltstone and shale bedrock at depths of 20 to 40 inches. Slopes range from 0 to 15 percent.

The Orpark soils are in a drainage sequence that includes the moderately well drained Towerville soils. They are in landscape positions similar to those of Fremont, Volusia, and Hornell soils. They are not so deep over bedrock as Volusia and Fremont soils, and do not have a fragipan that is typical of Volusia soils. They have less clay in the subsoil than Hornell soils.

Typical pedon of Orpark silt loam, 3 to 8 percent slopes; in the town of Ashford; on east side of Cole Road, 300 feet south of intersection with Beech Road:

- Ap—0 to 8 inches; very dark grayish brown (10YR 3/2) silt loam; weak medium granular structure; friable; many fine roots; 5 percent rock fragments; slightly acid, limed; abrupt smooth boundary.
- Bw1—8 to 12 inches; light olive brown (2.5Y 5/4) silt loam; weak fine subangular blocky structure; friable; common fine and few medium roots; common medium distinct olive gray (5Y 5/2) ped faces; common medium prominent strong brown

- (7.5YR 5/6) masses of iron accumulation and distinct olive gray (5Y 5/2) iron depletions in the matrix; 5 percent rock fragments; strongly acid; clear smooth boundary.
- Bw2—12 to 22 inches; light olive brown (2.5Y 5/4) silty clay loam; moderate medium subangular blocky structure; firm; common fine roots; gray (5Y 5/1) ped faces; common medium prominent strong brown (7.5YR 5/6) masses of iron accumulation and common fine distinct olive gray (5Y 5/2) iron depletions in the matrix; 10 percent rock fragments; strongly acid; clear smooth boundary.
- C—22 to 24 inches; light olive brown (2.5Y 5/4) silt loam; weak thick plate like divisions; firm; few very fine roots; common medium prominent strong brown (7.5YR 5/6) masses of iron accumulation and common fine distinct olive gray (5Y 5/2) iron depletions in the matrix; 5 percent rock fragments; strongly acid; abrupt smooth boundary.
- Cr—24 to 26 inches; olive brown (2.5Y 4/4) extremely channery silty clay loam; dark gray (10YR 4/1), gray (10YR 5/1) and strong brown (7.5YR 5/6) weathered shale; thin plate-like divisions inherited from the bedrock; firm; 70 percent rock fragments; strongly acid; abrupt smooth boundary.
- 2R—26 inches; soft shale bedrock interbedded with siltstone.

The thickness of the solum ranges from 20 to 32 inches. The depth to bedrock ranges from 20 to 40 inches. The content of rock fragments, consisting mainly of soft shale, siltstone or fine grained sandstone, ranges, by volume, from 0 to 10 percent in the surface layer, from 0 to 20 percent in the subsoil, from 0 to 35 percent in the substratum, and up to 90 percent in the Cr horizon. Unless limed, reaction is very strongly acid or strongly acid throughout the profile.

The Ap horizon has a hue of 10YR or 2.5Y, value of 3 or 4, and chroma of 1 to 3. The texture is loam, silt loam or silty clay loam in the fine earth fraction.

The Bw horizon has hue of 10YR to 5Y, value of 4 to 6, and chroma of 2 to 4. The texture is silt loam or silty clay loam in the fine earth fraction. Structure is weak or moderate, fine to medium subangular blocky or prismatic. Consistence is friable or firm.

The C horizon, has colors and textures similar to those of the Bw horizon. It has plate-like divisions, or the material is massive.

The Cr horizon, if it occurs, has colors and textures similar to those of the Bw horizon. It has plate-like divisions, or the material is massive.

The 2R horizon is soft shale or siltstone.

#### **Palms Series**

The Palms series consists of very deep, very poorly drained, nearly level soils in depressional areas on lake plains and till plains throughout the county. These soils formed in decomposed organic deposits underlain by loamy mineral soil at a depth of 16 to 51 inches. Slopes range from 0 to 3 percent.

The Palms soils are associated with Carlisle, Halsey, Canandaigua, and Alden soils. They are shallower to mineral deposits than Carlisle soils. They do not have the high content of silt and clay that is typical of Canandaigua soils. They do not have the content of rock fragments that is typical of Halsey and Alden soils.

Typical pedon of Palms muck, 0 to 2 percent slopes; in the town of Farmersville; 3 miles south of Siloam Road and 0.3 miles west of Blue Street:

- Oa1—0 to 12 inches; black (10YR 2/1) sapric material, broken and rubbed; moderate, medium and coarse granular structure; very friable; 5 percent fiber, 1 percent fiber rubbed; many fine roots; moderately acid; clear smooth boundary.
- Oa2—12 to 23 inches; black (10YR 2/1) sapric material, broken and rubbed; 5 percent fibers, 2 percent fiber when rubbed; weak medium granular structure; slightly sticky; few roots; moderately acid; clear smooth boundary.

Oa3—23 to 32 inches; black (10YR 2/1) sapric material, broken face, very dark brown (10YR 2/2) sapric material rubbed; 10 percent fiber, 3 percent fiber when rubbed; some woody fragments; massive; slightly sticky; moderately acid; abrupt smooth boundary.

- C1—32 to 43 inches; gray (10YR 6/1) fine sandy loam; weak thin plate-like divisions; non-sticky; slightly acid; abrupt smooth boundary.
- C2—43 to 72 inches; gray (10YR 5/1) gravelly loam; massive; slightly sticky; 20 percent rock fragments; slightly acid.

The depth to the underlying mineral material ranges from 16 to 51 inches. The depth to bedrock is more than 60 inches. Reaction of the organic material ranges from strongly acid to slightly alkaline, and from slightly acid to moderately alkaline in the underlying mineral material. The content of fragments of twigs, branches, or logs in the organic material range from 0 to 15 percent. Rock fragment content ranges from 0 to 25 percent in the substratum.

The surface layer is primarily black (10YR 2/1) or very dark brown (10YR 2/2) sapric material.

The organic subsurface layers have hue of 5YR to 10YR or are neutral. They have value of 2 or 3, and chroma of 0 to 3. The organic material is mainly sapric material.

The C horizon has hue of 10YR to 5Y, value of 4 to 7, and chroma of 1 or 2. The texture is fine sandy loam, loam, silt loam, silty clay loam or clay loam.

# **Pawling Series**

The Pawling series consists of very deep, moderately well drained, nearly level soils on flood plains and alluvial fans. These soils formed in alluvium derived from upland soils that have a high content of sandstone, siltstone and shale. Slopes range from 0 to 3 percent.

Pawling soils are associated with Tioga, Middlebury, Unadilla, and Scio soils. They occur in lower positions on the landscape than Unadilla and Scio soils, and Unadilla and Scio soils are not underlain by stratified sand and gravel deposits within a depth of 40 inches. They do not have deep silty deposits that are typical of Tioga and Middlebury soils. They are also associated with Chenango and Castile soils that occur on nearby terraces, but do not have the content of gravel in the upper part of the profile, that is characteristic of well drained Chenango or moderately well drained Castile soils.

Typical pedon of Pawling silt loam; in the town of Ellicottville; adjacent to south side of Great Valley Creek, 500 feet north of NY Route 242 and 0.7 miles from Irish Hill Road and NY Route 242:

- Ap—0 to 9 inches; very dark grayish brown (10YR 3/2) silt loam; weak fine and medium granular structure; very friable; many fine roots; moderately acid; clear smooth boundary.
- Bw1—9 to 22 inches; brown (10YR 4/3) silt loam; weak fine subangular blocky structure; very friable; common fine and medium roots; 2 percent rock fragments; moderately acid; clear smooth boundary.
- Bw2—22 to 28 inches; brown (10YR 5/3) loam; weak medium and coarse subangular blocky structure; very friable; few fine roots; common coarse distinct dark yellowish brown (10YR 4/4) masses of iron accumulation and gray (10YR 5/1) iron depletions; 5 percent rock fragments; moderately acid; abrupt wavy boundary.
- 2C1—28 to 39 inches; gray (10YR 5/1) gravelly loamy sand; massive; loose; common medium distinct brown (10YR 4/3) masses of iron accumulation; 20 percent rock fragments; slightly acid; abrupt wavy boundary.
- 2C2—39 to 72 inches; dark gray (10YR 4/1) very gravelly sand; single grain; loose; 50 percent rock fragments; slightly acid.

The thickness of the solum ranges from 20 to 45 inches. The depth to bedrock is more than 60 inches. The content of rock fragments ranges, by volume, from 0 to 10 percent in the solum and from 15 to 70 percent in the substratum. Reaction ranges from strongly acid to moderately acid above 20 inches and moderately acid to neutral in the lower part of the solum and substratum.

The Ap horizon has hue of 10YR or 2.5Y, value 3 or 4, and chroma of 2 or 3. The texture is silt loam or loam.

The B horizon has hue of 7.5YR to 2.5Y, value of 4 or 5, chroma of 3 or 4. Redoximorphic features with low and high chroma occur in the lower part of this horizon. The textures are silt loam, loam, or fine sandy loam in the fine earth fraction. Structure is weak or moderate, fine to coarse subangular blocky or granular. Consistence is friable or very friable.

The 2C horizon has hue of 10YR or 2.5Y, value of 4 or 5, chroma of 1 to 3. The textures are sand or loamy sand in the fine earth fraction. The material is massive or single grain. Consistence is very friable or loose.

### **Philo Series**

The Philo series consists of very deep, moderately well drained, nearly level soils on flood plains and alluvial fans. These soils formed in alluvial derived from upland soils that have a high content of sandstone, siltstone and shale. Slopes range from 0 to 3 percent.

Philo soils are in a drainage sequence that includes the well drained Pope soils, and the poorly drained Atkins soils. They are associated with Unadilla and Scio soils. They have a higher content of fine sand than Unadilla and Scio soils. They are also associated with Chenango and Castile soils on nearby terraces but do not have the high gravel content that is typical of these soils.

Typical pedon of Philo silt loam, 0 to 3 percent slopes, in a cultivated field; town of Portville; 400 feet south west of River Road and Barberton Road, 50 feet west of River Road:

- Ap—0 to 8 inches, dark grayish brown (10YR 4/2) silt loam; moderate fine granular structure; friable; many fine roots; strongly acid; abrupt smooth boundary.
- Bw1—8 to 14 inches, dark yellowish brown (10YR 4/4) fine sandy loam; moderate fine granular structure; friable; common fine roots; strongly acid; clear wavy boundary.
- Bw2—14 to 21 inches, yellowish brown (10YR 5/6) fine sandy loam; weak fine subangular blocky structure; friable; few fine roots; strongly acid; clear smooth boundary.
- Bw3—21 to 34 inches, yellowish brown (10YR 5/4) loam; weak fine subangular blocky structure; friable; common medium distinct strong brown (7.5YR 5/8) masses of iron concentrations and grayish brown (10YR 5/2) iron depletions in the matrix; strongly acid; clear smooth boundary.
- C1—34 to 46 inches, strong brown (7.5YR 5/6) loam; massive; friable; 5 percent rock fragments, strongly acid; clear smooth boundary.
- C2—46 to 72 inches, strong brown (7.5YR 5/6) sandy loam; massive; friable; 10 percent rock fragments; strongly acid.

The thickness of the solum ranges from 20 to 48 inches. The depth to bedrock is more than 60 inches. The content of rock fragments ranges, by volume, from 0 to 20 percent in the surface layer, subsoil and substratum and from 0 to 40 percent in the C horizon. Reaction ranges from very strongly acid to moderately acid throughout the profile.

The Ap horizon has hue of 10YR or 7.5YR, value of 3 or 4, and chroma of 2 or 3. The texture of the fine-earth fraction is silt loam, loam, sandy loam, and fine sandy loam

The Bw horizon has hue of 7.5YR, 10YR, or 2.5Y, value of 3 to 6, and chroma of 3 to 6. Redoximorphic features with low and high chroma occur in the lower part of this horizon. Structure is weak or moderate, fine to coarse subangular blocky or granular. The texture of the fine earth fraction is silt loam, loam, fine sandy loam, and sandy loam. Consistence is friable or very friable.

The C horizon has hue of 7.5YR to 5Y, or is neutral, value of 4 to 6, and chroma of 0 to 6. The texture of the fine earth fraction is silt loam, loam, fine sandy loam, and sandy loam. Consistence is friable or very friable.

# **Pope Series**

The Pope series consists of very deep, well drained, nearly level soils on flood plains. These soils formed in alluvium derived from upland soils that have a high content of sandstone, siltstone and shale. Slopes range from 0 to 3 percent.

Pope soils are in a drainage sequence that includes the moderately well drained Philo soils, and the poorly drained Atkins soils. They are associated with Unadilla and Scio soils. They have a higher content of fine sand than Unadilla and Scio soils. They are also associated with Chenango and Castile soils on nearby terraces but do not have the high gravel content in the subsoil, which is typical of these soils.

Typical pedon of Pope fine sandy loam, 0 to 3 percent slopes; in the town Portville; 1.2 miles south of Barberton Road and NY Route 305, 125 feet west of NY Route 305:

- Ap—0 to 10 inches; dark grayish brown (10YR 4/2) fine sandy loam; moderate medium granular structure; very friable; many fine and medium roots; strongly acid; clear smooth boundary.
- Bw1—10 to 17 inches; yellowish brown (10YR 5/4) very fine sandy loam; weak medium subangular blocky structure; very friable; common fine roots; strongly acid; clear wavy boundary.
- Bw2—17 to 38 inches; dark yellowish brown (10YR 4/4) very fine sandy loam; weak fine and medium subangular blocky structure; very friable; few fine roots; strongly acid; clear wavy boundary.
- C1—38 to 64 inches; dark yellowish brown (10YR 4/4) loam; massive; friable; common medium distinct brown (7.5YR 5/4) iron concretions in the matrix; 10 percent rock fragments; strongly acid.
- C2—64 to 80 inches; brown (10YR 4/3) sandy loam; massive; friable; 10 percent rock fragments; very strongly acid.

The thickness of the solum ranges from 30 to 60 inches. The depth to bedrock is more than 60 inches. The content of rock fragments ranges, by volume, from 0 to 30 percent to a depth of 40 inches, and from 0 to 75 percent below that depth. Reaction is strongly acid or very strongly acid throughout the profile.

The Ap horizon has hue of 10YR, value of 3 to 6, and chroma of 3 to 6. The texture in the fine earth fraction is fine sandy loam, sandy loam, loam, or silt loam.

The Bw horizon has hue of 10YR or 7.5YR, value of 4 to 6, and chroma of 3 to 6. Structure is weak or moderate, fine to coarse subangular blocky or granular. The texture in the fine earth fraction is sandy loam, fine sandy loam, very fine sandy loam, loam, or silt loam. Consistence is friable or very friable.

The C horizon has hue of 10YR or 7.5YR, value of 4 to 6, and chroma of 3 to 6. The texture in the fine earth fraction is loamy sand, loamy fine sand, fine sandy loam, sandy loam, loam, or sandy clay loam, or stratified layers of any of these textures. Consistence is friable or very friable.

### **Portville Series**

The Portville series consists of very deep, somewhat poorly drained, gently sloping or strongly sloping soils on toeslopes, side slopes, and benches of the unglaciated plateau. These soils formed in colluvium derived from interbedded shale, siltstone and fine-grained sandstone. Slopes range from 3 to 15 percent.

Portville soils are in a drainage sequence that includes the moderately well drained Buchanan soils, and the poorly drained Brinkerton soils. They are closely associated with Gilpin, Rayne, and Cavode soils. They are deeper to bedrock than Gilpin soils, and have a fragipan layer which is lacking in Rayne and Cavode soils. They are wetter than Rayne soils, and have less clay in the subsoil than Cavode soils.

Typical pedon of Portville silty clay loam, 3 to 8 percent slopes; in the town of Carrollton; 50 feet north of Limestone Run Road, 1.6 miles west of Parkside Drive and Limestone Run Road:

- Ap—0 to 7 inches; dark grayish brown (10YR 4/2) silty clay loam; moderate fine and medium granular structure; very friable; many fine roots; 10 percent rock fragments; very strongly acid; abrupt smooth boundary.
- E—7 to 12 inches; pale brown (10YR 6/3) channery silt loam; weak medium subangular blocky structure; friable; common fine roots; common medium distinct strong brown (7.5YR 5/8) masses of iron accumulation and common medium distinct light brownish gray (2.5Y 6/2) iron depletions in the matrix; 15 percent rock fragments; very strongly acid; clear irregular boundary.
- E/Btx—12 to 22 inches; E material (occurs as fillings between tops of prisms, 3 inches wide at the top and 1 inch at the bottom) is light brownish gray (2.5Y 6/2) channery silt loam; weak medium subangular blocky structure; friable; few fine roots; common medium distinct strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; Btx material is dark yellowish brown (10YR 4/4) channery silt loam; weak coarse prismatic parting to moderate medium subangular blocky structure; firm, slightly brittle; few fine roots along prisms faces; common fine pores; light brownish gray (10YR 6/2) ped faces; thin discontinuous clay films on all faces of peds and on surfaces along pores; common fine manganese concretions; common medium distinct strong brown (7.5YR 5/8) masses of iron accumulation and light brownish gray (10YR 6/2) iron depletions in the matrix; 20 percent rock fragments; very strongly acid; clear wavy boundary.
- Btx1—22 to 35 inches; yellowish brown (10YR 5/6) channery silt loam; moderate very coarse prismatic parting to weak medium subangular blocky structure; very firm, brittle; few fine roots along prism faces; thin discontinuous light brownish gray (10YR 6/2) clay films on all faces of peds and on surfaces along pores; light brownish gray (10YR 6/2) exterior prism faces with strong brown (7.5YR 5/8) rinds; common fine manganese concretions; common medium distinct light brownish gray (10YR 6/2) iron depletions and strong brown (7.5YR 5/8) masses of iron accumulation in the matrix; 20 percent rock fragments; strongly acid; clear wavy boundary.
- Btx2—35 to 50 inches; yellowish brown (10YR 5/4) channery silt loam; weak very coarse prismatic parting to weak very coarse subangular blocky structure; very firm, brittle; few fine roots along prism faces; common fine pores; light brownish gray (10YR 6/2) exterior prism faces with strong brown (7.5YR 5/8) rinds; thin discontinuous clay films on all faces of peds and on surface along pores; common fine manganese concretions; common medium distinct light brownish gray (10YR 6/2) iron depletions and strong brown (7.5YR 5/8) masses of iron accumulation in the matrix; 30 percent rock fragments; strongly acid; clear wavy boundary.
- C1—50 to 60 inches; yellowish brown (10YR 5/6) channery silty clay loam; massive; firm; many thick continuous gray (10YR 6/1) clay and silt coatings on fracture

faces; common medium distinct gray (10YR 6/1)iron depletions in the matrix; 15 percent rock fragments; strongly acid; clear wavy boundary.

C2—60 to 72 inches, yellowish brown (10YR 5/4) very gravelly silty clay loam; massive; firm; few manganese concretions; 40 percent rock fragments; strongly acid.

The thickness of the solum ranges from 36 to 80 inches. The depth to bedrock is more than 60 inches. The depth to the fragipan ranges from 12 to 36 inches. The content of rock fragments ranges, by volume, from 2 to 15 percent in the surface layer, from 5 to 40 percent in the subsoil, and from 15 to 60 percent in the substratum. Reaction ranges from very strongly acid to moderately acid in the surface layer, subsurface layer and subsoil, and from very strongly acid to slightly acid in the substratum.

The Ap horizon has hue of 10YR or 7.5YR, value of 3 or 4, and chroma of 1 to 3. The texture is loam, silt loam or silty clay loam in the fine earth fraction.

The E horizon has hue of 7.5YR to 2.5Y, value of 5 or 6, and chroma of 2 to 4. The texture is silt loam, loam or silty clay loam in the fine earth fraction. Structure is weak or moderate subangular blocky or platy. Consistence is very friable or friable.

The Bt horizon or Bw horizon, if present, has hue of 7.5YR to 5Y, value of 4 to 6, and chroma of 2 to 6, with low and high chroma redoximorphic features in the upper 10 inches of the horizon. The texture is silt loam or silty clay loam in the fine earth fraction. Structure is weak or moderate subangular blocky or prismatic. Consistence is friable or firm.

The Btx horizon has hue of 7.5YR to 5Y, value of 4 to 6, and chroma of 2 to 8. The texture is loam, silt loam, silty clay loam, or clay loam in the fine earth fraction. Structure is prismatic or subangular blocky. Consistence is firm or very firm.

The BC horizon, if present, has colors similar to that of the Btx horizon and textures similar to that of the C horizon. Structure is prismatic or platy. Consistence is firm or very firm.

The C horizon has hue of 7.5YR to 5Y, value of 3 to 6, and chroma of 2 to 6. The texture is loam, silt loam, silty clay loam, or silty clay in the fine earth fraction. It is massive. Consistence ranges from friable to very firm.

# Rayne Series

The Rayne series consists of very deep, well drained, moderately steep to very steep soils that formed in residuum weathered from interbedded shale, siltstone, and some fine grained sandstone. They are on upland ridgetops and hillsides of the unglaciated plateau. Slopes range from 15 to 50 percent.

The Rayne soils are associated with Buchanan, Cavode, Eldred, Gilpin, Hartleton, and Portville soils. They are deeper over bedrock than Gilpin and Hartleton soils, and also do not have the rock fragments content that is typical of Hartleton soils. They contain less clay in the subsoil than Cavode soils. They do not have a fragipan that is typical of Buchanan and Portville soils. They are better drained and occur at a lower elevation than Eldred soils.

Typical pedon of Rayne channery silt loam, 15 to 25 percent slopes; in the town of Great Valley; located along access road to cellular tower, 0.6 miles north of the intersection of Halsaver Road with Hardscrabble Road:

- A—0 to 4 inches; very dark grayish brown (10YR 3/2) channery silt loam; weak fine and medium granular structure; very friable; many fine roots; 20 percent rock fragments; strongly acid; abrupt wavy boundary.
- BE—4 to 16 inches; yellowish brown (10YR 5/4) channery silt loam; weak medium subangular blocky structure; friable; common roots; 20 percent rock fragments, of which 5 percent is greater than 3 inches in diameter; strongly acid; clear smooth boundary.

- Bt1—16 to 31 inches; brown (10YR 5/3) channery silt loam; weak medium subangular blocky structure; friable; common medium and fine roots; few clay films on surfaces along pores; 20 percent rock fragments; strongly acid; abrupt smooth boundary.
- Bt2—31 to 38 inches; dark yellowish brown (10YR 4/4) channery silt loam; moderate medium subangular blocky structure; firm; few fine and medium roots; few clay films on surfaces along pores; 25 percent rock fragments; strongly acid; abrupt wavy boundary.
- C—38 to 72 inches; light olive brown (2.5Y 5/3) channery silt loam; massive; firm; 25 percent rock fragments; strongly acid.

The thickness of the solum ranges from 38 to 60 inches. The depth to bedrock is more than 60 inches. The content of rock fragments, consisting mainly of channers and flagstones ranges, by volume, from 5 to 40 percent in the solum and from 15 to 60 percent in the substratum. Reaction is very strongly acid or strongly acid throughout the profile.

The A horizon has a hue of 7.5YR or 10YR, value of 3 or 4, and chroma of 2 to 4. The texture is silt loam or loam in the fine earth fraction.

The BE horizon has hue of 7.5YR to 2.5Y, value and chroma of 4 to 6. The texture is loam or silt loam in the fine earth fraction. Consistence is friable or very friable.

The Bt horizon has hue of 7.5YR to 5Y, value of 4 to 6, and chroma of 3 to 8. The texture of the fine earth fraction is loam, silt loam, clay loam, or silty clay loam. Some pedons have lithochromic mottles in the B and C horizons. Structure is weak or moderate subangular or angular blocky. Consistence is friable or firm.

The BC horizon, when present, has hue of 7.5YR to 5Y, value of 4 or 5 and chroma of 3 to 8. The textures are similar to those of the C horizon. Structure is subangular blocky or platy. Consistence ranges from friable to very firm.

The C horizon has hue of 7.5YR to 2.5Y, value of 4 or 5, and chroma of 1 to 8. The texture is loam, silt loam, silty clay loam and clay loam in the fine-earth fraction. This horizon has plate-like divisions, or the material is massive. Consistence is firm or very firm.

# **Red Hook Series**

The Red Hook series consists of very deep, somewhat poorly drained, nearly level soils on outwash plains and terraces, stream terraces, and moraines. These soils formed in glacial outwash and stream deposits. Slopes range from 0 to 3 percent.

Red Hook soils are in a drainage sequence that includes well drained Chenango soils, moderately well drained Castile soils and very poorly drained Halsey soils. They are associated with Tonawanda, Swormville, Scio, and Busti soils. They do not have the high silt content that is typical of Tonawanda and Scio soils, and they contain more rock fragments than those soils. They do not have the finer textured mantle that is typical of Swormville soils. Red Hook soils formed in outwash and have a stratified substratum, while Busti soils formed in glacial till.

Typical pedon of Red Hook silt loam, 0 to 3 percent slopes; in the town of Conewango; 2,000 feet south of NY Route 241 and Swamp Road, 500 feet east of Swamp Road:

- Ap—0 to 9 inches; very dark grayish brown (10YR 3/2) silt loam; pale brown (10YR 6/3) dry; moderate medium granular structure; friable; many fine roots; 10 percent rock fragments; slightly acid; abrupt smooth boundary.
- Bw—9 to 21 inches; brown (10YR 4/3) gravelly loam; weak medium subangular blocky structure; friable; few fine roots; common medium distinct grayish brown (10YR 5/2) iron depletions and yellowish brown (10YR 5/6) masses of iron accumulation within the matrix; 20 percent rock fragments; neutral; clear wavy boundary.

Bg—21 to 32 inches; dark grayish brown (10YR 4/2) gravelly sandy loam; weak medium subangular blocky structure; friable; common medium distinct yellowish brown (10YR 5/4) masses of iron accumulation within the matrix and grayish brown (10YR 5/2) iron depletions; 30 percent rock fragments; neutral; clear wavy boundary.

C—32 to 72 inches; dark grayish brown (10YR 4/2) very gravelly sandy loam; massive; loose; 45 percent rock fragments; neutral.

The thickness of the solum ranges from 20 to 40 inches. The depth to bedrock is more than 60 inches. The content of rock fragments ranges, by volume, from 5 to 35 percent in the surface layer, from 10 to 60 percent in the subsoil, and from 15 to 65 percent in the substratum. Reaction ranges from strongly acid to slightly acid in the surface, from moderately acid to neutral in the subsoil, and from moderately acid to slightly alkaline in the substratum.

The Ap horizon has hue of 10YR or 2.5Y, value of 2 to 4, and chroma of 2 or 3. Texture is fine sandy loam, loam, or silt loam in the fine earth fraction.

The B horizon has hue of 7.5YR to 5Y, value of 4 to 6, and chroma of 1 to 4. The texture is sandy loam, loam or silt loam in the fine earth fraction. Structure is weak or moderate, fine or medium, subangular blocky. Consistence is friable or firm.

The C horizon has hue of 7.5YR to 5Y, value of 3 to 5, and chroma of 1 to 3. The texture is quite variable. It ranges from gravelly or very gravelly loamy sand to gravelly or very gravelly silt loam. Consistence is loose to firm.

## **Rhinebeck Series**

The Rhinebeck series consists of very deep, somewhat poorly drained, nearly level to strongly sloping soils formed in clayey lacustrine sediments. They are on glacial lake plains. Slopes range from 0 to 15 percent.

Rhinebeck soils are in a drainage sequence that includes the moderately well drained Hudson soils and the poorly drained Canadice soils. They are associated with Churchville, Barcelona, Niagara, and Canandaigua soils. They are better drained than the silty Canandaigua soils, and they contain more clay than the silty Niagara soils. They do not have the rock fragments in the substratum that are associated with the Churchville and Barcelona soils. Also, Barcelona soils have bedrock at a depth of 40 to 60 inches.

Typical pedon of Rhinebeck silt loam, 3 to 8 percent slopes; in the town of Yorkshire; southeast of intersection of County Route 73 and Weaver Road:

- Ap—0 to 9 inches; very dark grayish brown (10YR 3/2) silt loam; moderate medium granular structure; friable; many fine roots; moderately acid; abrupt smooth boundary.
- BE—9 to 13 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate fine and medium blocky structure; friable; common fine roots; common pores; light brownish gray (2.5Y 6/2) silt films on faces of peds; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation and gray (10YR 5/1) iron depletions; moderately acid; clear wavy boundary.
- Bt1—13 to 20 inches; dark yellowish brown (10YR 4/4) silty clay; moderate coarse prismatic that parts to moderate medium angular blocky structure; firm; few fine roots; common fine pores; grayish brown (10YR 5/2) clay films on all faces of peds and on surfaces along pores; many medium distinct yellowish brown (10YR 5/8) masses of iron accumulations and gray (10YR 5/1) iron depletions; slightly acid; gradual smooth boundary.
- Bt2—20 to 38 inches; brown (10YR 4/3) silty clay; strong coarse prismatic structure that parts to moderate coarse angular blocky; firm; dark grayish brown (10YR 4/2) clay films on all faces of peds and on surfaces along pores; common medium

- distinct yellowish brown (10YR 5/6) masses of iron accumulation and gray (10YR 5/1) iron depletions; neutral; clear wavy boundary.
- C—38 to 72 inches; grayish brown (10YR 5/2) silty clay loam; massive; firm; thin gray lenses of silt loam in varves; common medium distinct brown (10YR 4/3) masses of iron accumulation and gray (10YR 5/1) iron depletions; calcareous, moderately alkaline.

The thickness of the solum ranges from 20 to 40 inches. The depth to carbonates range from 20 to 72 inches. The depth to bedrock is more than 60 inches. Rock fragments commonly are not present in the profile, but in some pedons make up as much as 10 percent by volume. Reaction ranges from strongly acid to neutral in the surface layer, strongly acid to slightly alkaline in the subsoil, and from slightly acid to moderately alkaline in the substratum.

The Ap horizon has hue of 10YR or 2.5Y, value of 2 to 4, and chroma of 1 to 3. The texture is silt loam, loam or silty clay loam.

The BE horizon has hue of 7.5YR to 5Y, value of 4 to 6, and chroma of 3 to 6. The texture is silt loam, silty clay loam, or silty clay. Structure is weak or moderate subangular blocky or platy. Consistence ranges from friable to firm.

The Bt horizon has hue of 7.5YR to 5Y, value of 3 to 5, and chroma of 2 to 4. It has distinct high and low chroma redoximorphic features. The texture is silty clay loam or silty clay. Structure is weak to strong prismatic to subangular or blocky. Consistence is firm or very firm.

The C horizon has hue of 5YR to 5Y, value of 3 to 5, chroma of 1 to 4. The texture commonly ranges from silty clay loam to clay, but in some horizons the range includes fine sand. This horizon is massive and may be varved.

#### **Rushford Series**

The Rushford series consists of very deep, moderately well drained, gently sloping to sloping soils, formed in a thin mantle of glacial till underlain with silty lacustrine material. They are on elevated lake plains and end moraines in the upland plateau. Slopes range from 3 to 15 percent.

Rushford soils are in a drainage sequence that includes the somewhat poorly drained Wiscoy soils. They are associated with Canaseraga, Langford, Mardin, Schuyler, and Towerville soils. They have a fragipan that is lacking in the Schuyler soils, and are deeper to bedrock than Towerville soils. Rushford soils do not have a mantle of silty material that is present in Canaseraga soils. They are underlain with silty lacustrine material which is lacking in Langford and Mardin soils.

Typical pedon of Rushford channery silt loam, 3 to 8 percent slope; in the town of Yorkshire; 1,500 feet east of County Route 21 and Cagwin Road:

- A—0 to 4 inches, brown (10YR 4/3) channery silt loam; moderate very fine granular structure; very friable; many fine and medium roots; 15 percent rock fragments; very strongly acid; abrupt wavy boundary.
- Bw1—4 to 9 inches, yellowish brown (10YR 5/6) channery silt loam; moderate fine subangular blocky structure; very friable; many fine and medium roots; 15 percent rock fragments; strongly acid; abrupt wavy boundary.
- Bw2—9 to 21 inches, yellowish brown (10YR 5/4) channery silt loam; weak fine subangular blocky structure; very friable; common fine and medium roots; few fine faint yellowish brown (10YR 5/8) masses of iron accumulations within the matrix in the lower part; 20 percent rock fragments; strongly acid; abrupt wavy boundary.
- Bx1—21 to 28 inches, pale brown (10YR 6/3) channery loam; weak very coarse prismatic structure parting to weak fine subangular blocky; very firm, brittle; prism faces are 1/4 inch wide with gray (N 6/0) exteriors and brownish yellow (10YR 6/6) borders; common fine faint yellowish brown (10YR 5/4) masses of iron

accumulations within the matrix; 25 percent rock fragments; strongly acid; clear smooth boundary.

- 2Bx2—28 to 36 inches, yellowish brown (10YR 5/4) silt loam; weak very coarse prismatic structure parting to weak thick platy; firm, slightly brittle; gray (N 6/0) prism faces with brownish yellow (10YR 6/6) borders; strongly acid; clear smooth boundary.
- 2C—36 to 72 inches; olive brown (2.5Y 4/4) silt loam, with some varves of dark yellowish brown (10YR 4/4) silty clay loam; moderate medium plate-like divisions (inherited varves); firm; strongly acid.

The thickness of the solum ranges from 24 to 50 inches. The depth to bedrock is more than 60 inches. The thickness of the loamy mantle ranges from 20 to 36 inches. The content of rock fragments ranges, by volume, from 15 to 35 percent by volume in the surface layer and upper part of the subsoil, and from 0 to 5 percent in the lower part of the subsoil and substratum. Reaction ranges from very strongly acid to slightly acid in the surface layer, from very strongly acid to moderately acid in the Bw horizon and upper fragipan, and from very strongly acid to slightly acid in the fragipan, and substratum.

The A or Ap horizon has hue of 10YR or 7.5YR, value of 3 or 4, and chroma of 1 to 4. The texture is silt loam or loam in the fine earth fraction.

The Bw horizon has hue of 7.5YR to 2.5Y, value of 4 to 6, and chroma of 3 to 6. The texture is silt loam, loam, or fine sandy loam in the fine earth fraction. Structure is weak or moderate, fine to coarse subangular blocky or granular. Consistence is friable or very friable.

The Bx horizon has colors similar to those of the Bw horizon. The texture is loam or silt loam in the fine earth fraction. Structure is coarse or very coarse prismatic with platy, subangular blocky or massive interiors. Consistence is firm or very firm and brittle.

The 2Bx horizon has hue of 5YR to 2.5Y, value of 3 to 6, and chroma or 2 to 4. The texture is silt loam or silt. Consistence is firm or very firm.

The 2C horizon has hue of 5YR to 5Y, value of 3 to 5, and chroma of 2 to 4. The texture is silt or silt loam, and may contain thin varves of silty clay loam, silty clay or clay. The material is massive or has plate-like divisions. Consistence is firm or very firm.

#### Salamanca Series

The Salamanca series consists of very deep, moderately well drained, gently sloping to steep soils on glaciated uplands. These soils formed in glacial till derived from sandstone, siltstone, and shale. They are on upland till plains, hilltops and valley sides above elevations of 1,800 feet in the upland plateau. Slopes range from 3 to 35 percent.

The Salamanca soils are in a drainage sequence that includes somewhat poorly drained Almond soils. They are associated on the landscape with Yorkshire, Franklinville, Ischua, and Willdin soils. They do not have the fragipan typical of Yorkshire and Willdin soils. They are wetter and finer textured than Franklinville soils, and are deeper over bedrock than Ischua soils. Valois and Chadakoin soils are also on landscapes at lower elevations. Salamanca soils are wetter and have more clay content in the subsoil than Valois and Chadakoin soils.

Typical pedon of Salamanca silt loam, 3 to 8 percent slopes; in the town of Lyndon; one mile east of North Center Road and Porter Road, 400 feet north of Porter Road:

Ap—0 to 8 inches; dark grayish brown (10YR 4/2) silt loam; moderate fine and medium granular structure; very friable; many fine roots; 10 percent rock fragments, consisting mainly of channers; moderately acid; abrupt smooth boundary. Bw1—8 to 16 inches; brown (10YR 5/3) silt loam; weak fine subangular blocky

structure; very friable; common fine roots; 5 percent rock fragments, consisting mainly of channers; moderately acid; clear smooth boundary.

- Bw2—16 to 28 inches; light olive brown (2.5Y 5/4) channery silty clay loam; moderate medium subangular blocky structure; firm; very few roots; light brownish gray (10YR 6/2) ped faces; common medium distinct grayish brown (10YR 5/2) iron depletions and strong brown (7.5YR 5/8) masses of iron accumulation in the lower part; 20 percent rock fragments; strongly acid; clear wavy boundary.
- Bw3—28 to 37 inches; light olive brown (2.5Y 5/4) channery silt loam; weak medium subangular blocky structure; firm; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation and light brownish gray (10YR 6/2) iron depletions; 25 percent rock fragments; strongly acid; clear wavy boundary.
- C—37 to 72 inches; olive brown (2.5Y 4/4) channery silt loam; massive; firm; common medium distinct grayish brown (10YR 5/2) iron depletions and yellowish brown (10YR 5/6) masses of iron accumulation; 30 percent rock fragments; strongly acid.

The thickness of the solum ranges from 26 to 50 inches. The depth to bedrock is more than 60 inches. The content of rock fragments, consisting mainly of channers and flagstones ranges, by volume, from 5 to 35 percent in the upper part of the solum and from 20 to 50 percent in the lower part of the solum and substratum. Reaction ranges from very strongly acid to moderately acid in the surface layer and subsoil, and from very strongly acid to slightly acid in the substratum.

The Ap horizon has hue of 10YR or 7.5YR, value of 3 or 4, and chroma of 1 to 3. The texture is silt loam or loam in the fine earth fraction.

The Bw horizons have hues of 7.5YR to 5Y, value of 4 to 6, and chroma of 3 to 6. The texture is silt loam, loam or silty clay loam in the fine earth fraction. Structure is weak or moderate, fine to coarse, subangular blocky or granular. Consistence ranges from very friable to firm.

The C horizon has hues of 7.5YR to 5Y, values of 3 to 5, and chroma of 1 to 4. The texture is silt loam, loam or silty clay loam in the fine earth fraction.

## Saprists

Saprists consist of very deep, very poorly drained organic soils. These soils formed in deposits of well decomposed herbaceous and woody plant remnants. They are ponded with shallow water throughout most of the year and commonly are termed fresh water marsh. They are commonly level, and are in low lying areas adjacent to lakes and streams.

Saprists commonly are near Carlisle, Palms, Canandaigua, Alden, and Wayland soils. Carlisle and Palms soils are generally not permanently ponded. Canandaigua, Alden, and Wayland soils are only ponded or flooded for brief periods of time.

Because of the variability of Saprists, a typical pedon is not provided. Saprists typically have organic deposits 16 to 60 inches thick over mineral soil deposits. The depth to bedrock is more than 60 inches. Woody fragments make up 0 to 20 percent of the organic layers. The soils are very strongly acid to neutral in the organic part of the profile and strongly acid to moderately alkaline in the mineral substratum.

The O layer mainly has hue of 5YR to 10YR or is neutral. It has value of 2 or 3, and chroma of 0 to 2. It consists mainly of well decomposed sapric material.

The mineral 2C horizon has hue of 5YR to 5Y or is neutral. It has value of 1 to 6 and chroma of 0 to 4. It is loamy sand to silty clay or the gravelly and very gravelly analogs of the textures within that range.

## **Schuyler Series**

The Schuyler series consists of very deep, moderately well drained, gently sloping to very steep soils on valley sides and on other side slopes of upland plateaus. These

soils formed in glacial till derived from shale, siltstone, and sandstone. Slopes range from 3 to 50 percent.

The Schuyler soils are in a drainage sequence that includes somewhat poorly drained Fremont soils and poorly drained Ashville soils. They are associated with Mardin, Chadakoin, Towerville, and Orpark soils. They are finer textured than Mardin soils, and they do not have the fragipan that is characteristic of Mardin soils. They are deeper over bedrock than Towerville soils, which have bedrock within a depth of 40 inches. They are wetter and contain more clay than the Chadakoin soils, and they are better drained and deeper over bedrock than Orpark soils.

Typical pedon of Schuyler silt loam, 8 to 15 percent slopes; in the town of Franklinville; on Hess road, 1/4 mile west of Allegany County line:

- Ap—0 to 6 inches; dark grayish brown (10YR 4/2) silt loam; moderate medium granular structure; friable; many fine roots; 5 percent rock fragments; strongly acid; clear smooth boundary.
- Bw1—6 to 13 inches; light yellowish brown (10YR 6/4) silt loam; weak fine subangular blocky structure; friable; common fine roots; 5 percent rock fragments; very strongly acid; clear smooth boundary.
- Bw2—13 to 23 inches; yellowish brown (10YR 5/4) silt loam; moderate medium subangular blocky structure; friable; few fine roots; common medium distinct strong brown (7.5YR 5/6) masses of iron accumulation and grayish brown (2.5Y 5/2) iron depletions in the lower part; 10 percent rock fragments; very strongly acid; clear smooth boundary.
- Bg—23 to 35 inches; light brownish gray (2.5Y 6/2) channery silty clay loam; weak coarse prismatic parting to moderate medium subangular blocky structure; firm; many medium prominent strong brown (7.5YR 5/6) masses of iron accumulation and light olive gray (5Y 6/2) iron depletions; 20 percent rock fragments; strongly acid; clear wavy boundary.
- C—35 to 72 inches; olive brown (2.5Y 4/4) channery silty clay loam; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation and light olive gray (5Y 6/2) iron depletions; massive; firm; 20 percent rock fragments; strongly acid.

The thickness of the solum ranges from 20 to 48 inches. The depth to bedrock is more than 60 inches. The content of rock fragments ranges, by volume, from 5 to 35 percent in the surface and upper subsoil, and from 20 to 60 percent in the lower subsoil and substratum. Reaction ranges from very strongly acid to moderately acid throughout the profile.

The Ap or A horizon has hue of 10YR or 2.5Y, value of 2 to 5, and chroma of 1 to 3. The texture is silt loam, fine sandy loam or loam.

The Bw or Bg horizons have hue of 7.5YR to 5Y, value of 4 to 6, and chroma of 2 to 6. The texture of the fine earth fraction is loam, silt loam, or silty clay loam. Structure is weak or moderate, fine, or medium subangular blocky. Consistence ranges from very friable to firm.

The C horizon has hue of 7.5YR to 5Y, value of 3 to 5, and chroma of 1 to 4. The texture of the fine earth fraction is loam, silt loam or silty clay loam. This horizon is massive, or has plate-like divisions.

### Scio Series

The Scio series consists of very deep, moderately well drained, nearly level soils on terraces or old alluvial fans. These soils formed in wind or water deposited silt and very fine sand. Slopes range from 0 to 3 percent.

The Scio soils are in a drainage sequence that includes well drained Unadilla soils and the somewhat poorly drained Tonawanda soils. They are associated with Castile,

Allard, Olean, and Collamer soils. They have less clay in the subsoil than Collamer and Olean soils, and they do not have the contrasting gravelly deposits that are typical of the Allard and Olean soils. Scio soils do not have the gravelly rock fragments in the upper part of the profile that are associated with Castile soils.

Typical pedon of Scio silt loam, 0 to 3 percent slopes; in the town of Freedom; adjacent to NY Route 98 and about 0.2 miles south of junction with Brown School House Road:

- Ap—0 to 9 inches, dark grayish brown (10YR 4/2) silt loam; moderate fine granular structure; friable; many fine roots; moderately acid (limed); abrupt smooth boundary.
- Bw1—9 to 17 inches, yellowish brown (10YR 5/4) silt loam; moderate medium subangular blocky structure; friable; common fine roots; common pores; strongly acid; clear wavy boundary.
- Bw2—17 to 26 inches, yellowish brown (10YR 5/4) silt loam; moderate medium subangular blocky structure; friable; few fine roots; common pores; common medium distinct strong brown (7.5YR 5/6) masses of iron accumulation and gray (10YR 6/1) iron depletions; strongly acid; clear wavy boundary.
- BC—26 to 36 inches, dark yellowish brown (10YR 4/4) silt loam; weak coarse subangular blocky structure; friable; common pores; common medium distinct yellowish brown (10YR 5/8) masses of iron accumulation and light brownish gray (10YR 6/2) iron depletions; strongly acid; clear smooth boundary.
- C—36 to 50 inches, brown (10YR 5/3) silt loam; weak very coarse plate like divisions; friable; few pores; common medium distinct light brownish gray (2.5Y 6/2) iron depletions; moderately acid; abrupt smooth boundary.
- 2C—50 to 72 inches, dark brown (10YR 3/3) gravelly loamy sand; single grain; wet non-sticky; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation; 20 percent rock fragments; moderately acid.

The thickness of the solum ranges from 20 to 48 inches. The depth to material that has texture different from the solum is more than 40 inches. The depth to bedrock is more than 60 inches. The content of rock fragments ranges, by volume, from 0 to 5 percent above a depth of 40 inches and from 0 to 60 percent below this depth. Reaction is very strongly acid or strongly acid in the surface layer (unless limed) and upper subsoil, very strongly acid to moderately acid in the lower subsoil, and strongly acid to slightly alkaline in the substratum

The Ap horizon has hue of 7.5YR or 10YR, value of 3 to 5, and chroma of 2 or 3. The texture is silt loam, very fine sandy loam, or fine sandy loam.

The B horizon has hue of 7.5YR to 5Y, value of 4 or 5, and chroma of 3 to 6. It has high and low chroma redoximorphic features. The texture of the fine earth fraction is silt loam or very fine sandy loam. Structure is weak or moderate, fine or medium, subangular blocky or platy. Consistence is very friable or friable.

The C horizon has hue of 7.5YR to 5Y, value of 4 to 6, and chroma of 1 to 4. The texture of the fine earth fraction is silt loam or very fine sandy loam to a depth of 40 inches, and can be silt loam to stratified sand and gravel below this depth. These horizons are massive or single grain or have weak plate like divisions. Consistence is friable to firm.

The 2C horizon has hue of 7.5YR to 5Y, value of 3 to 6, and chroma of 1 to 4. The texture of the fine earth fraction is silt loam, very fine sandy loam or loamy very fine sand. Below 40 inches, the texture may range from fine sandy loam to very gravelly sand. These horizons are massive or single grain. Consistence is loose to friable.

## **Shongo Series**

The Shongo series consists of very deep, somewhat poorly drained, gently sloping to strongly sloping soils on toeslopes, side slopes, and benches of the unglaciated

plateau. These soils formed in colluvium derived from interbedded shale, siltstone and fine-grained sandstone at elevations over 1,800 feet. Slopes range from 3 to 15 percent.

Shongo soils are in a drainage sequence that includes the moderately well drained Onoville soils. They are closely associated with Carrollton, Kinzua, Ivory, and Eldred soils. They are deeper to bedrock than Carrollton soils, and have a fragipan which is lacking in Kinzua, Ivory, and Eldred soils. Additionally, they are wetter than Eldred soils, and have less clay in the subsoil than Ivory soils.

Typical pedon of Shongo silt loam, 3 to 8 percent slopes; in the town of Red House, in Allegany State Park; 150 feet north of Bay State Road and 4,350 feet west of English Stoddard Road:

- Ap—0 to 6 inches; dark grayish brown (10YR 4/2) silt loam; moderate fine and medium granular structure; friable; many fine roots; 5 percent rock fragments; very strongly acid; abrupt smooth boundary.
- BE—6 to 14 inches; yellowish brown (10YR 5/4) silt loam; moderate medium and fine subangular blocky structure; friable; many fine roots; few fine pores; common medium distinct strong brown (7.5YR 5/8) masses of iron accumulation and common medium distinct light brownish gray (10YR 6/2) iron depletions in the matrix; 5 percent rock fragments; very strongly acid; clear wavy boundary.
- Bt—14 to 24 inches; brown (10YR 5/3) silty clay loam; moderate medium subangular blocky structure; friable; few fine roots; common fine pores; light brownish gray (10YR 6/2) ped faces; common clay films on all faces of peds and on surfaces along pores; common medium distinct light brownish gray (10YR 6/2) iron depletions and common medium distinct strong brown (7.5YR 5/8) masses of iron accumulation in the matrix; 10 percent rock fragments; strongly acid; clear wavy boundary.
- Btx1—24 to 45 inches; grayish brown (2.5Y 5/2) channery silty clay loam; weak very coarse prisms parting to weak medium subangular blocky structure; very firm, brittle; few fine roots along prism faces; common pores; prism faces are 1/8 inch thick and have light brownish gray (10YR 6/2) exteriors with strong brown (7.5YR 5/8) rinds; common thin clay films on all faces of peds and on surfaces along pores; common manganese concretions; common medium prominent yellowish brown (10YR 5/6) masses of iron accumulation and common medium distinct light brownish gray (10YR 6/2) iron depletions in the matrix; 30 percent rock fragments; strongly acid; clear wavy boundary.
- Btx2—45 to 56 inches; light olive brown (2.5Y 5/4) channery silty clay loam; weak very coarse prisms parting to weak medium subangular blocky structure; firm, brittle; common pores; prism faces are 1/8 inch thick and have gray (10YR 6/1) exteriors and strong brown (7.5YR 5/6) rinds; common thin clay films on all faces of peds and on surfaces along pores; common manganese concretions; thin stone line in lower part of horizon; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation and gray (2.5Y 6/1) iron depletions in the matrix; 30 percent rock fragments; strongly acid; clear wavy boundary.
- BC—56 to 72 inches; light olive brown (2.5Y 5/4)very channery silty clay loam; moderate thick platy structure; firm; common manganese stains; 35 percent rock fragments; moderately acid.

The thickness of the solum ranges from 36 to 80 inches. The depth to bedrock is more than 60 inches. The content of rock fragments ranges, by volume, from 5 to 35 percent in the surface layer, from 5 to 40 percent in the subsoil, and from 15 to 60 percent in the substratum. Reaction ranges from very strongly acid to moderately acid in the solum, and from very strongly acid to slightly acid in the substratum.

The A or Ap horizon has hue of 10YR or 7.5YR, value of 3 or 4 and chroma of 1 to 3. The texture is silt loam or silty clay loam in the fine earth fraction.

The BE horizon has hue of 7.5YR to 5Y, value of 4 to 6 and chroma of 2 to 6. The texture is silt loam, silty clay loam or loam in the fine earth fraction. Structure is weak or moderate subangular blocky or granular. Consistence is very friable or friable.

The Bt horizon has hue of 7.5YR to 5Y, value of 4 to 6 and chroma of 2 to 6. It has low and high chroma redoximorphic features in the upper 10 inches of this horizon. The texture is silt loam, silty clay loam or loam in the fine earth fraction. Structure is weak or moderate subangular blocky. Consistence is friable or firm.

The Btx horizon has hue of 7.5YR to 5Y, value of 4 to 6 and chroma of 2 to 8. The texture is loam, silt loam, silty clay loam, or clay loam in the fine earth fraction. Structure is prismatic parting to blocky. Consistence is firm or very firm.

The BC horizon has hue of 7.5 YR to 5Y, value of 3 to 6, and chroma of 2 to 6. Textures are similar to those of the Btx horizon. Structure is prismatic or platy. Consistence is firm or very firm.

The C horizon has hue of 7.5YR to 5Y, value of 3 to 6, chroma of 2 to 6. The texture is loam, silt loam, silty clay loam, or clay loam in the fine earth fraction. It is massive. Consistence ranges from friable to very firm.

### Swormville Series

The Swormville series consists of very deep, somewhat poorly drained, nearly level soils on broad valley flats and lake plains. These soils are formed in silty lacustrine deposits and old alluvial deposits that are high in content of silt and clay and underlain by sandy lake-laid sediment. Slopes range from 0 to 3 percent.

The Swormville soils are in a drainage sequence that includes the well drained Allard soils, the moderately well drained Olean soils, and the poorly drained Getzville soils. They are associated with Tonawanda, Minoa, Niagara and Canandaigua soils. They have more clay in the surface mantle than Tonawanda soils, and they are not so sandy in the upper part of the mantle as Minoa soils. They are better drained than Canandaigua soils. The silty Niagara soils are not underlain by sand within a depth of 40 inches.

Typical pedon of Swormville silt loam; in the town of Leon; 1/4 mile west of Dredge Road and NY Route 62, 100 feet north of Dredge Road:

- Ap—0 to 8 inches; very dark grayish brown (10YR 3/2) silt loam; weak fine subangular blocky structure; friable; many fine roots; less than 2 percent rock fragments; slightly acid; abrupt smooth boundary (6 to 12 inches thick.)
- Bt1—8 to 19 inches; brown (10YR 5/3) silt loam; weak medium subangular blocky structure; friable; few fine roots; dark grayish brown (10YR 4/2) worm and root channels; faint clay films on all faces of peds and on surfaces along pores; grayish brown (10YR 5/2) iron depletions on all faces of peds; common medium distinct strong brown (7.5YR 5/6) masses of iron accumulation and grayish brown (10YR 5/2) iron depletions within the matrix; less than 2 percent rock fragments; slightly acid; gradual wavy boundary.
- Bt2—19 to 31 inches; brown (10YR 5/3) silt loam; moderate medium subangular blocky structure; slightly firm; few fine roots; grayish brown (10YR 5/2) iron depletions on all faces of peds; common distinct clay films on all faces of peds and on surfaces along pores; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation and gray (10YR 5/1) iron depletions within the matrix; less than 2 percent rock fragments; slightly acid; gradual wavy boundary (Combined thickness of the Bt horizon is 10 to 35 inches).
- BC—31 to 35 inches; grayish brown (10YR 5/2) sandy loam; massive; friable; common medium distinct yellowish brown (10YR 5/6) and strong brown (7.5YR 5/6) masses of iron accumulation; 5 percent rock fragments; neutral; clear wavy boundary (0 to 7 inches thick).

2C1—35 to 52 inches; grayish brown (10YR 5/2) loamy sand; massive; very friable; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation and common medium distinct gray (10YR 6/1) iron depletions; 10 percent rock fragments; neutral; clear wavy boundary.

2C2—52 to 72 inches; grayish brown (10YR 5/2) medium sands; massive; loose; 10 percent rock fragments; neutral, slightly alkaline at 65 inches.

Depth to the underlying sandy material ranges from 20 to 38 inches. The thickness of the solum ranges from 25 to 45 inches. Depth to bedrock is greater than 60 inches. Depth to carbonates ranges from 20 to 70 inches. Rock fragments, dominantly gravel, range from 0 to 5 percent in the A and Bt horizons and from 0 to 40 percent in the 2B and 2C horizons. Unless the soil is limed, reaction ranges from strongly acid to neutral in the surface layer, from moderately acid to neutral in the upper part of the subsoil, from slightly acid to slightly alkaline in the lower part of the subsoil, and neutral to moderately alkaline in the substratum.

The Ap or A horizon has hue of 10YR or 2.5Y, value of 2 to 4, and chroma of 2 or 3. Texture of the fine-earth fraction is loam, silt loam, clay loam, or silty clay loam. Structure is weak or moderate, granular or subangular blocky. Consistence is friable or very friable. Thickness of the A horizon ranges from 2 to 5 inches thick.

The Bt horizons have hue of 7.5YR to 5Y, value of 3 to 6, and chroma of 2 to 6, with both high and low chroma redoximorphic features. Chroma of 2 or less is dominant on all faces of peds. Texture of the fine-earth fraction is silt loam, clay loam, or silty clay loam. Structure is prismatic, subangular blocky or blocky. Consistence is friable or firm.

A thin BC, 2BC, or 2CB horizon, where present, underlies the Bt horizons with similar colors. Structure is generally of weaker grade. Texture of the fine-earth fraction is loamy fine sand to very fine sandy loam. Consistence is friable, very friable, or loose. Free carbonates are present in these horizons in some pedons.

The 2C horizon has hue of 5YR to 5Y, value of 3 to 5, and chroma of 1 to 4. Texture of the fine-earth fraction ranges from loamy fine sand to sand. It has very friable or loose consistence.

#### **Teel Series**

The Teel series consist of very deep, moderately well drained, nearly level soils on flood plains along major streams. These soils formed in silty alluvial sediments. Slopes range from 0 to 3 percent.

Teel soils are in a drainage sequence that includes the well drained Hamlin soils, the somewhat poorly drained Wakeville soils, and the poorly drained Wayland soils. They are associated with Middlebury, Tioga, Tonawanda, Scio and Canandaigua soils. Tonawanda and Scio soils formed in silty lacustrine deposits. Teel soils are better drained and have less clay content in the subsoil than Canandaigua soils. They do not have the content of sand and gravel that is typical of Middlebury and Tioga soils and are more silty.

Typical pedon of Teel silt loam; in the town of Ashford; in a corn field one mile east of Thomas Corners Road, 900 feet north of the junction of Thomas Corners Road and County Route 12:

- Ap—0 to 8 inches; dark grayish brown (10YR 4/2) silt loam; moderate medium to fine granular structure; friable; many fine roots; less than 2 percent rock fragments; neutral; abrupt smooth boundary.
- Bw1—8 to 22 inches; dark yellowish brown (10YR 4/4) silt loam; weak medium subangular blocky structure; friable; common fine roots; less than 2 percent rock fragments; neutral; clear smooth boundary.

- Bw2—22 to 34 inches; brown (10YR 5/3) silt loam; weak medium subangular blocky structure; friable; few fine roots; common medium distinct strong brown (7.5YR 5/6) masses of iron accumulation in the matrix and grayish brown (10YR 5/2) iron depletions in the matrix; neutral; clear wavy boundary.
- C1—34 to 56 inches; brown (10YR 4/3) silt loam; massive; friable; common medium distinct strong brown (7.5YR 5/6) masses of iron accumulation in the matrix and grayish brown (10YR 5/2) iron depletions in the matrix; neutral; clear wavy boundary.
- C2—56 to 72 inches; grayish brown (10YR 5/2) very fine sandy loam; massive; very friable; slightly alkaline.

The thickness of the solum ranges from 24 to 50 inches. The depth to bedrock is more than 60 inches. The content of rock fragments commonly is, by volume, less than 5 percent in the surface layer and subsoil but ranges from 0 to 20 percent in the substratum. Reaction ranges from strongly acid to neutral above a depth of 30 inches and from moderately acid to slightly alkaline below this depth.

The Ap horizon has hue of 10YR or 2.5Y, value of 3 or 4, and chroma of 1 to 3. The texture is silt loam or very fine sandy loam.

The B horizon has hue of 5YR to 2.5Y, value of 3 to 5, and chroma of 2 to 4. The texture is silt loam or very fine sandy loam. Structure is weak or moderate, medium or coarse subangular blocky to prismatic. Consistence is friable or very friable.

The C horizon has hue of 5YR to 2.5Y, value of 3 to 5, and chroma of 1 to 4. The texture is silt loam, very fine sandy loam or fine sandy loam in the fine earth fraction. This horizon is massive or has plate like divisions. Consistence ranges from very friable to firm.

## **Tioga Series**

The Tioga series consists of very deep, well drained nearly level soils on flood plains along major streams and creeks. These soils formed in alluvium derived mainly from parent materials containing sandstone, siltstone and shale. Slopes range from 0 to 3 percent.

Tioga soils are in a drainage sequence that includes the moderately well drained Middlebury soils and the somewhat poorly drained Holderton soils. They are associated with Hamlin, Teel, Chenango, and Unadilla soils. They have a lower silt content than Hamlin and Teel soils, which also occur on flood plains. They contain less silt but more rock fragments than Unadilla soils, which are in the higher positions on terraces. They do not have the high gravel content in the subsoil that is typical of Chenango soils.

Typical pedon of Tioga silt loam; in the town of Allegany; 1/4 mile south of the junction of County Route 19 and County Route 60, and 1,500 feet east of County Route 60:

- Ap—0 to 8 inches; dark grayish brown (10YR 4/2) silt loam; moderate fine and medium granular structure; very friable; many fine roots; moderately acid; abrupt smooth boundary.
- Bw1—8 to 16 inches; brown (10YR 4/3) silt loam; weak medium subangular blocky structure; very friable; many fine roots; moderately acid; clear wavy boundary.
- Bw2—16 to 34 inches; brown (10YR 5/3) very fine sandy loam; weak medium subangular blocky structure; very friable; few roots; moderately acid; clear wavy boundary.
- C1—34 to 42 inches; yellowish brown (10YR 5/4) very fine sandy loam; massive; very friable; 5 percent rock fragments; moderately acid; clear wavy boundary.
- C2—42 to 72 inches; yellowish brown (10YR 5/4) fine sandy loam; massive; loose; 10 percent rock fragments; moderately acid.

The thickness of the solum ranges from 18 to 40 inches. The depth to bedrock is more than 60 inches. The content of rock fragments ranges, by volume, from 0 to 35 percent in individual layers of the solum and from 0 to 60 percent in the substratum. Reaction ranges from strongly acid to neutral in the solum and from moderately acid to slightly alkaline in the substratum.

The Ap horizon has hue of 7.5YR to 2.5Y, value of 3 to 5, chroma of 2 to 4. The texture is fine sandy loam to silt loam in the fine earth fraction.

The Bw horizon has hue of 7.5YR to 2.5Y, value of 3 to 5, and chroma of 2 to 4. The textures range from fine sandy loam to silt loam in the fine earth fraction. Structure is weak or moderate, fine to coarse, subangular blocky, prismatic, or granular. Consistence is very friable or friable.

The BC horizon, where it occurs, has colors and textures similar to those of the B horizon. Structure is weak, subangular blocky, or the material is massive. Consistence is very friable, friable or loose.

The C horizon has hue of 7.5YR to 2.5Y, value of 4 or 5, and chroma of 2 to 4. The textures range from loamy sand to silt loam in the fine earth fraction. Consistence ranges from loose to friable.

## **Tonawanda Series**

The Tonawanda series consists of very deep, somewhat poorly drained, nearly level to gently sloping soils on low flats and in basins on former lake plains. These soils formed in lake-laid deposits that have a high content of silt and very fine sand. Slopes range from 0 to 8 percent.

The Tonawanda soils are in a drainage sequence that includes the well drained Unadilla soil, and moderately well drained Scio soils. They are associated with Swormville, Getzville, Lamson, Canandaigua, and Niagara soils. They are better drained than Lamson and Canandaigua soils, are not as sandy as Lamson soils, and have a lower content of clay than Canandaigua soils. They are coarser textured than Niagara soils, and they do not have the fine textured mantle or underlying coarse textured material that is typical of Swormville and Getzville soils.

Typical pedon of Tonawanda silt loam, 0 to 3 percent slopes; in the town of Leon; 100 feet west of Frog Valley Road, 1/2 mile north of Frog Valley Road and Xura Road:

- Ap—0 to 9 inches; very dark grayish brown (10YR 3/2) silt loam; moderate medium granular structure; friable; many fine roots; 2 percent rock fragments; neutral; abrupt smooth boundary.
- Bw—9 to 14 inches; brown (10YR 5/3) silt loam; moderate medium subangular blocky structure; friable; many fine roots; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation and few gray (10YR 6/1) iron depletions; 2 percent rock fragments; slightly acid; gradual wavy boundary.
- Bg1—14 to 22 inches; grayish brown (10YR 5/2) silt loam; weak medium subangular blocky structure; friable; few fine roots; common medium distinct yellowish brown (10YR 5/6) and strong brown (7.5YR 5/6) masses of iron accumulation, and gray (10YR 6/1) iron depletions; 2 percent rock fragments; slightly acid; gradual wavy boundary.
- Bg2—22 to 38 inches; grayish brown (10YR 5/2) silt loam; weak medium subangular blocky structure; friable; common medium distinct yellowish brown (10YR 5/8) and yellowish red (5YR 5/6) masses of iron accumulation, and gray (10YR 6/1) iron depletions; 2 percent rock fragments; slightly acid; clear wavy boundary.
- C1—38 to 64 inches; grayish brown (10YR 5/2), yellowish brown (10YR 5/6) and gray (10YR 6/1) silt loam; massive; friable; 5 percent rock fragments; slightly acid; abrupt wavy boundary.
- C2—64 to 72 inches; grayish brown (10YR 5/2) stratified loamy fine sand and medium sands; massive; loose; 10 percent rock fragments; slightly acid.

The thickness of the solum ranges from 16 to 40 inches. The depth to bedrock is more than 60 inches. The rock fragment content is usually less than 2 percent throughout the solum, but may range up to 10 percent in the substratum. Reaction ranges from strongly acid to neutral in the surface layer and subsoil and from moderately acid to slightly alkaline in the substratum.

The Ap horizon has hue of 10YR or 2.5Y, value of 2 to 4, and chroma of 1 to 3. The texture is silt loam or very fine sandy loam.

The B horizon has hue of 5YR to 5Y, value of 4 to 6 and chroma of 1 to 4. The texture is silt, silt loam, very fine sandy loam, or loamy very fine sand. Structure is weak or moderate, fine to medium, granular or subangular blocky. Consistence is friable or firm.

The C horizon has colors and textures similar to those of the B horizon. It is massive or has varves that differ from each other in color and texture. Consistence is friable or firm.

### **Towerville Series**

The Towerville series consists of moderately deep, moderately well drained, gently sloping to very steep soils on valley sides and on other side slopes in upland plateaus. These soils formed in a thin mantle of glacial till underlain by siltstone and shale at a depth of 20 to 40 inches. Slopes range from 3 to 50 percent.

The Towerville soils are in a drainage sequence that includes the somewhat poorly drained Orpark soils. They are associated with Hornell, Schuyler, Mardin, Chadakoin, and Fremont soils. They contain less clay than Hornell soils and are not so deep over bedrock as Schuyler soils. They do not have the fragipan that is typical of Mardin soils, have more clay in the subsoil than Chadakoin, and are better drained than Fremont soils.

Typical pedon of Towerville silt loam, 8 to 15 percent slopes; in the town of Lyndon; near Clark Road, about 0.4 mile east of junction with Sabo Road:

- Ap—0 to 7 inches, dark grayish brown (10YR 4/2) silt loam; moderate fine granular structure; friable; many fine roots; 10 percent rock fragments; strongly acid; clear smooth boundary.
- Bw1—7 to 15 inches, yellowish brown (10YR 5/4) silt loam; moderate medium subangular blocky structure; friable; common fine roots; 5 percent rock fragments; strongly acid; clear wavy boundary.
- Bw2—15 to 23 inches, light yellowish brown (10YR 6/4) silt loam; weak fine and medium subangular blocky structure; friable; common fine roots; common medium distinct yellowish brown (10YR 5/8) masses of iron accumulation and gray (10YR 6/1) iron depletions; 10 percent rock fragments; strongly acid; clear smooth boundary.
- Bw3—23 to 32 inches, brown (10YR 4/3) channery silty clay loam; moderate fine subangular blocky structure; firm, slightly sticky; some remnant shale bedding seams; gray (5Y 6/1) silt coats on all faces of peds; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation and dark grayish brown (2.5Y 4/2) iron depletions; 20 percent rock fragments; strongly acid; abrupt smooth boundary.
- 2R—32 inches, gray sandstone and olive shale layered bedrock.

The thickness of he solum and depth to bedrock ranges from 20 to 40 inches. The content of rock fragments consisting mainly channers and flagstones ranges, by volume, from 5 to 35 percent by volume in the upper part of the solum, and from 10 to 60 percent in the lower part of the solum and substratum. Reaction ranges from very strongly acid to moderately acid in the Ap and Bw horizons. If they occur, reaction ranges from very strongly acid to slightly acid in the BC horizon, and from strongly acid to slightly acid in the C horizon.

The Ap horizon has hue of 10YR, value of 3 or 4, and chroma of 2 to 4. Textures are silt loam or loam in the fine earth fraction.

The Bw horizon has hue of 7.5YR to 2.5Y, value of 4 to 6, and chroma of 3 to 6. Texture is silt loam, loam, or silty clay loam in the fine earth fraction. Structure is weak to moderate, fine to coarse, subangular blocky. Consistence ranges from very friable to firm.

The BC horizon or C horizon, if it occurs, has hue of 5YR to 5Y, value of 3 to 6, and chroma of 1 to 6. The textures are similar to those of the B horizon but can include the very channery or very gravelly analogs of those textures. Structure is subangular blocky or platy in the BC horizon, but the C horizon is massive.

The R horizon is shale, siltstone, or sandstone that is horizontally bedded and commonly is interbedded.

#### Udifluvents

Udifluvents consist of deep, moderately well drained soils adjacent to perennial and intermittent streams. These soils are frequently flooded. They formed in recent alluvial deposits and show little or no soil development. Slopes range from 0 to 3 percent.

Udifluvents are mapped with Fluvaquents. They are often near Middlebury, Holderton, Teel, and Wayland soils and occur in areas where adjacent stream frequently shift the soil deposits from place to place by scouring, cutting, and lateral erosion.

Because of the variability of Udifluvents, a typical pedon is not provided. The solum of these soils generally has an A horizon of 0 inch to 9 inches thick. The depth to bedrock is more than 4 feet. Coarse fragments that include gravel, cobblestones, and flagstones, make up 0 to 70 percent, by volume, of some horizons. The soils are very strongly acid to moderately alkaline. The content of organic matter decreases irregularly as depth increases.

The A horizon mainly has hue of 5YR to 2.5Y, value of 3 or 4, and chroma of 2 or 3. The texture is quite variable. It is loamy sand to silt loam or the gravelly or very gravelly analogs of the textures within that range. In some areas the surface is stony.

The C horizon has hue of 5YR to 2.5Y, value of 3 to 6, and chroma of 2 to 4. Some pedons have redoximorphic features. The texture is loamy sand to silt loam or gravelly, cobbly, or very gravelly analogs of the textures within that range. Consistence is friable to loose.

## **Udorthents**

Udorthents are deep, excessively drained to somewhat poorly drained soils that show little or no evidence of pedogenic horizons. They occur in areas that have been altered by filling and grading activity associated with landfills, highways, housing developments, industrial sites, and other nonfarm uses. Slopes range from 0 to 35 percent.

Udorthents are in areas near urban development and in some rural areas. They also are in areas of gravelly deposits, where the original soil material has been removed

Because of the variability of Udorthents, a typical pedon is not provided. Udorthents have a surface layer that ranges from 0 to 36 inches thick. The depth to bedrock is more than 5 feet. The content of coarse fragments, including gravel and cobblestones, ranges from 0 to 65 percent in individual horizons. Reaction ranges from very strongly acid to moderately alkaline.

The A horizon dominantly has hue of 7.5YR to 2.5Y, value of 3 to 5, and chroma of 1 to 4. The texture is loamy sand to silt loam or the gravelly or very gravelly analogs.

The C horizon has hue of 5YR to 2.5Y, value of 3 to 6, and chroma of 3 or 4. The texture is loamy sand to silty clay or the gravelly or very gravelly analogs of the textures within that range. Trash and other debris commonly are mixed with the soil material in some areas.

## **Unadilla Series**

The Unadilla series consists of very deep, well drained, nearly level to moderately steep soils on stream terraces. These soils formed in wind and water deposited silt and very fine sand. Slopes range from 0 to 25 percent.

The Unadilla soils are in a drainage sequence that includes the moderately well drained Scio soils and the somewhat poorly drained Tonawanda soils. They are associated with Tioga, Castile, Allard, and Chenango soils. They do not have the contrasting gravelly deposits within a depth of 40 inches that are typical of Allard soils. They do not have the gravelly subsoil associated with Chenango and Castile soils, and they are better drained than Castile soils. They contain more silt than Tioga soils, and they are in higher positions on terraces.

Typical pedon of Unadilla silt loam, 0 to 3 percent slopes; in the town of Allegany; 120 feet south of Two Mile Road and County Route 60:

- Ap—0 to 9 inches; brown (10YR 4/3) silt loam; weak medium fine granular structure; very friable; many fine roots; moderately acid; abrupt smooth boundary.
- Bw1—9 to 14 inches; yellowish brown (10YR 5/6) silt loam; weak medium subangular blocky structure; very friable; common fine roots; moderately acid; gradual smooth boundary.
- Bw2—14 to 33 inches; brown (7.5YR 5/4) silt loam; weak medium subangular blocky structure; friable; few roots; 2 percent rock fragments; strongly acid; gradual smooth boundary.
- C—33 to 55 inches; brown (7.5YR 4/4) silt loam; massive; friable; common medium faint yellowish brown (10YR 5/6) masses of iron accumulation; thin lenses of fine sandy loam; weak medium plate like divisions; 2 percent rock fragments; strongly acid; clear wavy boundary.
- 2C—55 to 72 inches; brown (7.5YR 4/4) gravelly sandy loam; massive; loose; 25 percent rock fragments; strongly acid.

The thickness of the solum ranges from 20 to 50 inches. The depth to bedrock is more than 60 inches. The depth to contrasting material is more than 40 inches. The content of rock fragments ranges, by volume, from 0 to 5 percent in the solum and from 0 to 60 percent in the C or 2C horizons. Reaction ranges from very strongly acid to moderately acid in the surface layer and subsoil, and strongly acid to slightly alkaline in the substratum.

The Ap horizon has hue of 5YR to 2.5Y, value of 3 to 5, and chroma of 2 to 4. The texture is silt loam or very fine sandy loam.

The Bw horizon has hue of 5YR to 2.5Y, value of 3 to 6, and chroma of 3 to 6. The texture is silt loam or very fine sandy loam. Structure is weak or moderate, subangular blocky or prismatic, or the material is massive. Consistence ranges from very friable to firm.

The C and 2C horizon has hue of 7.5YR to 5Y, value of 4 or 5, and chroma of 2 to 6. The texture is silt loam or very fine sandy loam above a depth of 40 inches, and ranges from fine sandy loam to very gravelly sand below this depth. The C horizon is massive or single grain, or has weak or moderate plate like divisions. Consistence ranges from loose to firm.

## **Valois Series**

The Valois series consists of very deep, well drained, gently sloping to very steep soils on reglaciated outwash, and on lateral and recessional moraines. These soils formed in ablated glacial till dominated by material derived from sandstone, siltstone and shale. Slopes range from 3 to 50 percent.

The Valois soils are associated with Chadakoin, Chautauqua, Chenango, Mardin, and Schuyler soils. They have less gravel in the subsoil than Chenango soils. They do not have the fragipan that is typical of Mardin soils, and they contain less clay and are better drained than Schuyler soils. They have more gravel in the substratum than the Chadakoin and Chautauqua soils. Also, they are better drained than Chautauqua soils.

Typical pedon of Valois gravelly silt loam, 8 to 15 percent slopes; in the town of Yorkshire; in an abandoned pit on the east side of Cagwin Road and 0.5 mile north of Lime Lake Road:

- Ap—0 to 6 inches; dark grayish brown (10YR4/2) gravelly silt loam; moderate medium granular structure; very friable; many fine roots; 20 percent rock fragments; strongly acid; clear smooth boundary.
- Bw1—6 to 17 inches; strong brown (7.5YR 5/6) gravelly silt loam; weak fine subangular blocky structure; very friable; many fine roots; 20 percent rock fragments; strongly acid; clear wavy boundary.
- Bw2—17 to 27 inches; yellowish brown (10YR 5/6) gravelly silt loam; weak medium subangular blocky structure; very friable; common fine roots; 15 percent rock fragments; strongly acid; clear wavy boundary.
- Bw3—27 to 48 inches; yellowish brown (10YR 5/4) gravelly loam; weak medium subangular blocky structure; friable; few fine roots; 20 percent rock fragments; strongly acid; gradual smooth boundary.
- 2C—48 to 72 inches; brown (10YR 5/3) very gravelly sandy loam; loose; single grain; 35 percent rock fragments; strongly acid.

The thickness of the solum ranges from 30 to 70 inches. The depth to bedrock is more than 60 inches. The content of rock fragments ranges, by volume, from 5 to 35 percent in the surface layer and the upper part of the subsoil and from 15 to 35 percent in the lower part of the subsoil. Contrasting layers containing 35 to 70 percent rock fragments are common below a depth of 40 inches. Reaction ranges from extremely acid to moderately acid in the solum and from very strongly acid to neutral in the substratum.

The Ap horizon has hue of 7.5YR to 2.5Y, value of 2 to 5, and chroma of 2 or 3. The texture is sandy loam, silt loam, loam, very fine sandy loam, or fine sandy loam in the fine earth fraction.

The Bw horizon has hue of 7.5YR to 2.5Y, value of 3 to 5, and chroma of 3 to 6. The textures are silt loam, loam, very fine sandy loam, fine sandy loam, or sandy loam or the gravelly analogs of those textures. Structure is weak, fine to medium, granular or subangular blocky. Consistence is very friable or friable.

The 2C horizon has hue of 7.5YR to 2.5Y, value of 3 to 5, and chroma of 2 to 6. The texture ranges from silt loam to sandy loam and loamy sand or the very gravelly analogs of the textures within that range. It is single grain or massive. Consistence is firm to loose.

## **Varysburg Series**

The Varysburg series consists of very deep, moderately well drained, gently sloping to steep soils on outwash terraces and lateral and recessional moraines. These soils formed in outwash dominated by material derived from sandstone,

siltstone and shale, 20 to 35 inches deep over clayey lacustrine material. Slopes range from 3 to 35 percent.

The Varysburg soils are associated with Chenango, Hudson, Dunkirk, Rhinebeck, and Valois soils. They have less gravel in the substratum than Chenango and Valois soils, and both Chenango and Valois soils are not underlain with clayey material. They have more gravel in the subsoil than Hudson, Dunkirk or Rhinebeck soils. Also, they are better drained than Rhinebeck soils.

Typical pedon of Varysburg gravelly silt loam, 15 to 25 percent slopes; in the town of Dayton; south side of Van Etten Road, 200 feet east of NY Route 39 and Van Etten Road:

- Ap—0 to 5 inches; dark grayish brown (10YR 4/2) gravelly silt loam; weak fine granular structure; friable; many fine roots; 15 percent rock fragments; moderately acid; abrupt smooth boundary.
- BA—5 to 13 inches; yellowish brown (10YR 5/4) gravelly loam; weak fine and medium subangular blocky structure; friable; common fine roots; common dark grayish brown (10YR 4/2) worm channels; 20 percent rock fragments; moderately acid; clear wavy boundary.
- B/E—13 to 22 inches; strong brown (7.5YR 5/6) gravelly silt loam; weak fine subangular blocky structure; friable; common fine roots; pale brown (10YR 6/3) material between peds; 30 percent rock fragments; strongly acid; clear wavy boundary.
- Bt1—22 to 28 inches; yellowish brown (10YR 5/4) very gravelly loam; weak fine subangular blocky structure; friable; few fine roots; discontinuous clay on surfaces along pores; common medium distinct brown (10YR 5/3) and strong brown (7.5YR 5/8) masses of iron accumulation; 35 percent rock fragments; strongly acid; clear wavy boundary.
- Bt2—28 to 33 inches; brown (10YR 4/3) very gravelly loam; weak fine subangular blocky structure; friable; discontinuous clay on surfaces along pores and on surfaces of gravel; 50 percent rock fragments; moderately acid; abrupt smooth boundary.
- 2Bt3—33 to 38 inches; olive brown (2.5Y 4/4) silty clay loam; moderate coarse prismatic parting to moderate medium subangular blocky structure; firm; common fine pores; distinct clay films on all faces of peds and on surfaces along pores; common medium distinct brown (10YR 5/3) masses of iron accumulation; 2 percent rock fragments; neutral; clear wavy boundary.
- 2Bt4—38 to 48 inches; olive brown (2.5YR 4/4) silty clay loam; moderate coarse prismatic parting to moderate coarse angular blocky structure; firm; distinct clay films on all faces of peds and on surfaces along pores; slightly effervescent, slightly alkaline; clear wavy boundary.
- 2C—48 to 72 inches; olive brown (2.5Y 4/4) silty clay; varved with silt and clay; firm; strongly effervescent, moderately alkaline.

The thickness of the solum ranges from 35 to 50 inches. The depth to clayey material ranges from 20 to 35 inches. The depth to carbonates ranges from 35 to 60 inches. The depth to bedrock is more than 60 inches. The content of rock fragments ranges, by volume, from 10 to 40 percent in the surface horizon, increasing with depth to as much as 60 percent in the upper part of the B horizon. There are few or no rock fragments in the 2B and 2C horizons. Reaction of the solum is strongly acid or moderately acid in the upper part and slightly acid to moderately alkaline in the lower part and 2C horizon.

The Ap horizon has hue of 7.5YR or 10YR, value of 3 to 5, and chroma of 2 or 3. The texture ranges from sandy loam to silt loam in the fine earth fraction.

The BA horizon has hue of 7.5YR or 10YR, value of 4 or 5 and chroma of 4 to 6. The textures range from sandy loam through silt loam in the fine earth fraction.

Structure is weak, fine and medium subangular blocky. Consistence is friable or very friable.

The B/E horizon has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 3 to 6 in the B part; and value of 5 to 7, chroma of 2 or 3 in the E part. The texture is sandy loam, silt loam or loam in the fine earth fraction. Structure is weak or moderate, medium or fine, subangular blocky. Consistence is friable or firm.

The Bt horizon has hue of 7.5YR or 10YR, value of 3 or 5 and chroma of 2 or 4. The texture is sandy loam, loam or sandy clay loam in the fine earth fraction. Structure is weak or moderate, medium or fine, subangular blocky. Consistence is friable or firm.

The 2Bt horizon has hue of 7.5YR or 2.5Y, value of 4 or 5, and chroma of 2 or 4, and may have few or common redoximorphic features. The texture is silty clay loam or silty clay. Structure is moderate or strong, medium to very coarse, angular, or subangular blocky, or medium or coarse, prismatic. Consistence is firm or very firm.

The 2C horizon has colors that are similar to those of the 2Bt horizon. The texture is silty clay, silty clay loam, or clay, and is commonly varved with silt or silt loam.

## **Volusia Series**

The Volusia series consist of very deep, somewhat poorly drained, nearly level to strongly sloping soils on broad divides of the dissected, glaciated upland plateau. These soils formed in firm basal till dominated by material derived from siltstone, sandstone and shale. Slopes range from 0 to 15 percent.

Volusia soils are in a drainage sequence that includes the moderately well drained Mardin soils and the poorly drained Chippewa soils. They are associated with Busti, Erie, Ashville, Fremont, Napoli, and Orpark soils. They have a fragipan that is lacking in Busti and Fremont soils. Volusia soils are deeper over bedrock than Orpark soils. They have lower reaction than Erie soils, and they are better drained than Ashville soils. They occur at lower elevations than Napoli soils.

Typical pedon of Volusia channery silt loam, 3 to 8 percent slopes; in the town of Freedom; 100 feet north of Cheeseman Road and 800 feet west of Cheeseman road and Maple Grove Road:

- Ap—0 to 7 inches; very dark grayish brown (10YR 3/2) channery silt loam; moderate medium subangular blocky structure; friable; common fine and medium roots; many fine and few medium pores; 15 percent rock fragments; very strongly acid; abrupt smooth boundary.
- E—7 to 16 inches; light brownish gray (10YR 6/2) channery loam; weak medium to thin platy structure; friable; common fine roots; few coarse vesicular pores; many medium distinct yellowish brown (10YR 5/6) masses of iron accumulations; 25 percent rock fragments; strongly acid; clear wavy boundary.
- Bx—16 to 45 inches; brown (10YR 5/3) channery silt loam; massive within weak coarse prismatic structure; very firm, brittle; few fine roots between prisms; few vesicular pores, with few clay films on surfaces along pores; prisms separated by thin light brownish gray (10YR 6/2) wedges with yellowish brown (10YR 5/6) outer borders; common medium distinct yellowish brown (10YR 5/8) masses of iron accumulation and common medium faint grayish brown (2.5Y 5/2) iron depletions in the matrix; 30 percent rock fragments; strongly acid; clear smooth boundary.
- C1—45 to 68 inches; brown (10YR 4/3)very channery silt loam; massive; firm; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation and light brownish gray (10YR 6/2) iron depletions in the matrix; 35 percent rock fragments; strongly acid, clear wavy boundary.
- C2—68 to 72 inches; grayish brown (2.5Y 5/2) very gravelly loam; massive; firm; 45 percent rock fragments; strongly acid.

The thickness of the solum ranges from 40 to 72 inches. The depth to bedrock is more than 60 inches. Depth to the top of the fragipan ranges from 10 to 22 inches. The content of rock fragments ranges, by volume, from 5 to 30 percent above the fragipan and from 5 to 50 percent in the fragipan, and from 10 to 60 percent in the substratum. Reaction ranges from very strongly acid to moderately acid in the surface layer, very strongly acid to slightly acid in the subsurface and upper subsoil, strongly acid to slightly acid in the fragipan, and from strongly acid to slightly alkaline in the substratum.

The Ap horizon has hue of 10YR or 2.5Y, value of 3 to 5, and chroma of 2 or 3. The texture is loam or silt loam in the fine earth fraction.

The E horizon has hue of 10YR to 5Y, value of 4 to 6, and chroma of 1 or 2. The texture is loam or silt loam in the fine earth fraction. Structure is weak or moderate, fine or medium subangular blocky, or weak thin or medium platy. Consistence is friable or firm.

The Bx horizon has hue of 10YR to 5Y, value of 3 to 6, and chroma of 2 to 4. The texture is loam or silt loam in the fine earth fraction but ranges to clay loam or silty clay loam. Consistence ranges from firm to extremely firm.

The C horizon has colors and texture similar to those of the Bx horizon, except values range from 3 to 5. The material is massive or has plate like divisions. Consistence is firm or very firm.

#### Wakeville Series

The Wakeville series consist of very deep, somewhat poorly drained, nearly level soils on flood plains. These soils formed in deposits of recent silty alluvium. Slopes range from 0 to 3 percent.

Wakeville soils are in a drainage sequence that includes the well drained Hamlin soils, the moderately well drained Teel soils, and the poorly drained Wayland soils. Wakeville soils are associated with Unadilla, Scio, Holderton, and Chenango soils. They have less sand and gravel than Holderton soils. They are wetter than Unadilla and Scio soils, which are on the higher terraces. They are wetter and have less sand and gravel than Chenango soils.

Typical pedon of Wakeville silt loam; in the town of Hinsdale; near Oil Creek, 0.6 miles west of Allegany County Line:

- Ap—0 to 10 inches; dark grayish brown (10YR 4/2) silt loam; light brownish gray (2.5Y 6/2) dry; moderate modern granular structure; friable; many fine roots; moderately acid; abrupt smooth boundary.
- Bw—10 to 16 inches; light olive brown (2.5Y 5/4) silt loam; weak medium subangular blocky structure; friable; common fine roots; many pores; common medium distinct gray (10YR 5/1) iron depletions; moderately acid; clear smooth boundary.
- Bg1—16 to 34 inches; grayish brown (2.5Y 5/2) silt loam; weak medium subangular blocky structure; friable; few fine roots; common pores; many medium distinct yellowish brown (10YR 5/6) masses of iron accumulation and common faint gray (10YR 5/1) iron depletions; moderately acid; gradual smooth boundary.
- Bg2—34 to 43 inches; dark grayish brown (10YR 4/2) silt loam; weak medium subangular blocky structure; friable; wet, slightly sticky; common fine distinct brown (2.5YR 4/4) and yellowish brown (10YR 5/6) masses of iron accumulation; slightly acid; clear smooth boundary.
- Cg—43 to 52 inches; grayish brown (2.5Y 5/2) to gray (10YR5/1) silt loam; massive; friable; wet, slightly sticky; common medium distinct yellowish brown (10YR 5/4) masses of iron accumulation; slightly acid; abrupt smooth boundary.
- 2Cg—52 to 72 inches; very dark grayish brown (10YR 3/2) very gravelly loamy sand; massive, some stratification; wet non-sticky; 45 percent rock fragments; slightly acid.

The thickness of the solum ranges from 24 to 45 inches. The content of rock fragments, by volume, commonly is less than 5 percent in the surface layer and subsoil and ranges up to 20 percent in the substratum to a depth of 40 inches and up to 45 percent below this depth. The depth to bedrock is more than 60 inches. Reaction ranges from medium acid to neutral to a depth of 40 inches and from moderately acid to slightly alkaline below this depth.

The Ap horizon has hue of 10YR, value of 4 or 5, and chroma of 2 or 3. The texture is silt loam or very fine sandy loam.

The Bw horizon, if it occurs, has hue of 10YR or 2.5Y, value of 4 to 6, chroma of 3 to 6. The texture is silt loam or very fine sandy loam in the fine earth fraction. Structure is weak, fine to medium, subangular blocky or granular. Consistence is friable or very friable.

The Bg horizon has hue of 10YR or 2.5Y, value of 3 to 6, chroma of 1 or 2. The texture is silt loam or very fine sandy loam in the fine earth fraction. Structure is weak, fine to medium, subangular blocky or granular. Consistence is friable or very friable.

The Cg horizon has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 1 to 4. The texture in the fine earth fraction is silt loam or very fine sandy loam to a depth of 40 inches and ranges from loam to loamy sand below this depth. The horizon is massive. Consistence ranges from very friable to firm.

The 2C horizon has hue of 10YR to 5Y, value of 3 to 6, and chroma of 1 to 4. The texture in the fine earth fraction ranges from loam to loamy sand. The horizon is massive or has plate like divisions. Consistence is very friable or friable.

## **Wallington Series**

The Wallington series consists of very deep, somewhat poorly drained, nearly level soils on lacustrine plains or basins. These soils formed in lacustrine deposits that have a high content of silt and very fine sand. Slopes range from 0 to 3 percent.

The Wallington soils are in a drainage sequence that includes the moderately well drained Williamson soils. They are associated with Swormville, Getzville, Lamson, Canandaigua, and Tonawanda soils. Wallington soils have a fragipan that is not typical of Tonawanda soils or any of those associated soils. They are better drained than Lamson, Getzville, and Canandaigua soils. Wallington soils are not as sandy as Lamson soils, and have a lower content of clay than Canandaigua soils. They do not have the finer textured mantle that is typical of Swormville and Getzville soils.

Typical pedon of Wallington silt loam, 0 to 3 percent slopes; in the town of Machias; in cropland on the north side of Tingue Road, about 0.2 miles west of Hoppers Corners Road:

- Ap—0 to 8 inches; very dark grayish brown (10YR 3/2) silt loam; moderate medium granular structure; very friable; many fine roots; moderately acid; abrupt smooth boundary.
- E—8 to 14 inches; light brownish gray (10YR 6/2) silt loam; weak medium platy structure; friable; common fine roots; many fine and medium distinct strong brown (7.5YR 5/6) masses of iron accumulation; strongly acid; abrupt irregular boundary.
- Bx1—14 to 23 inches; brown (10YR 5/3) silt loam; weak very coarse prismatic structure, parting to weak platy structure; firm, brittle; few roots at top of prisms; coatings of light brownish gray (2.5Y 6/2) silt on prism faces; many medium distinct strong brown (7.5YR 5/6) masses of iron accumulation inside prisms; strongly acid; gradual smooth boundary.
- Bx2—23 to 38 inches; brown (10YR 4/3) silt loam; very coarse prismatic structure, massive within; very firm, brittle; few medium pores; some pores coated with thin clay linings; coatings of gray (10YR 6/1) silt on prism faces; many medium distinct

- yellowish brown (10YR 5/6) masses of iron accumulation within prisms; strongly acid; clear smooth boundary.
- C—38 to 72 inches; brown (10YR 5/3) silt loam; massive; firm; some very thin loamy very fine sand lenses; common fine faint gray (10YR 5/1) iron depletions; 5 percent rock fragments; moderately acid.

The thickness of the solum ranges from 30 to 60 inches. The depth to the top of the fragipan ranges from 12 to 24 inches. The depth to bedrock is more than 60 inches. The content of rock fragments, by volume, commonly is less than 3 percent in the solum, and up to 5 percent in the substratum. Reaction ranges from very strongly acid to moderately acid in the surface and subsurface layer, from very strongly acid to neutral in the fragipan and from moderately acid to neutral in the substratum.

The Ap horizon has hue of 10YR or 7.5YR, value of 3 or 4, and chroma of 2 or 3. The texture is silt loam or very fine sandy loam.

The E horizon has hue of 7.5YR to 5Y, value of 5 or 6, and chroma of 1 to 3. The texture ranges from silt loam to loamy very fine sand in the fine earth fraction. The horizon is massive, or it has weak platy or subangular blocky structure. Consistence is friable or firm.

The Bx horizon has hue of 5YR to 5Y, value of 4 to 6, and chroma of 2 to 4. The texture is silt loam or very fine sandy loam in the fine earth fraction. Structure is weak or moderate, very coarse prismatic parting to weak platy, or the material within prisms is massive. Consistence is firm or very firm.

The C horizon has colors similar to those of the Bx horizon. The textures range from loamy very fine sand to silt loam in the fine earth fraction. Consistence is friable or firm.

## **Wayland Series**

The Wayland series consists of very deep, poorly drained, nearly level soils that formed in recent alluvium along major streams and their tributaries. These soils are in the lowest positions of the flood plain, commonly in slack water areas farthest from the stream. Slopes range from 0 to 3 percent.

Wayland soils are in a drainage sequence that includes the somewhat poorly drained Wakeville soils, the moderately well drained Teel soils, and the well drained Hamlin soils. They are associated with Canandaigua, Halsey, Holderton and Middlebury soils. They are wetter than Holderton or Middlebury soils and contain more clay in the subsoil. They do not have the sand and gravel content that is typical of Halsey soils, and they are frequently flooded, unlike the silty Canandaigua soils.

Typical pedon of Wayland silt loam; in the town of Machias; in a pastured field southeast of intersection of Reynolds Road and Conrail Railroad:

- A—0 to 9 inches; very dark gray (10YR 3/1) silt loam; very dark grayish brown (10YR 3/2) crushed; light brownish gray (10YR 6/2) dry; moderate medium granular structure; friable; many fine roots; few fine faint dark brown (10YR 3/3) masses of iron accumulation; slightly acid; clear smooth boundary.
- Bg—9 to 25 inches; dark gray (10YR 4/1) silty clay loam; weak medium subangular blocky structure; friable; slightly sticky; many fine roots in upper part; common medium distinct dark yellowish brown (10YR 4/4) masses of iron accumulation; slightly acid; gradual smooth boundary.
- Cg1—25 to 51 inches; dark grayish brown (10YR 4/2) silt loam; massive; slightly sticky; common fine roots in upper part, few fine roots in lower part; common medium faint dark brown (10YR 3/3) masses of iron accumulation and gray (10YR 5/1) iron depletions; neutral; clear smooth boundary.
- Cg2—51 to 72 inches; dark gray (10YR 4/1) silt loam; massive; slightly sticky; thin fine gravel lenses; 5 percent rock fragments; slightly alkaline, slightly effervescent.

The thickness of the solum ranges from 10 to 30 inches. The depth to bedrock is more than 60 inches. The content of rock fragments commonly is less than 2 percent throughout the profile. Reaction ranges from strongly acid to neutral in the solum, from strongly acid to moderately alkaline in the upper part of the substratum, and from moderately acid to moderately alkaline in the lower part of the substratum.

The A horizon has hue of 10YR or 2.5Y or is neutral in hue. It has value of 2 or 3 and chroma of 0 to 2. The texture is silt loam, fine sandy loam or silty clay loam.

The Bg horizon has hue of 7.5YR to 5Y, value of 3 to 6, and chroma of 0 to 2. The texture is silt loam or silty clay loam. Structure is weak or moderate, fine or medium, subangular blocky, or it is weak or moderate, coarse prismatic. Consistence is friable or firm.

The C horizon has similar colors and textures similar to those of the B horizon. The horizon is massive or has plate like divisions. Consistence is friable or firm.

#### Willdin Series

The Willdin series consist of very deep, moderately well drained, gently sloping to moderately steep soils on the upland plateau. These soils formed in firm glacial till derived from siltstone, sandstone and brittle shale at elevations above 1,800 feet. Slopes range from 3 to 25 percent.

Willdin soils are associated with Yorkshire, Napoli Franklinville, Ischua, Salamanca, and Valois soils. They have a dense fragipan that is not present in the Salamanca, Franklinville, Ischua, and Valois soils. They are deeper over bedrock than Ischua soils and are wetter than Franklinville and Valois soils. They do not have the clay accumulation in the subsoil that is typical of Yorkshire and Napoli soils and are more acid. Valois soils are commonly on landscapes at lower elevations.

Typical pedon of Willdin channery silt loam, 3 to 8 percent slopes; in the town of Ashford; 50 feet north of Ashford Hollow Road, 100 feet east of the junction of Ashford Hollow Road and Hebdon Road:

- Ap—0 to 6 inches; dark brown (10YR 3/3) channery silt loam; moderate fine granular structure; friable; many fine and medium, and few large roots; 20 percent rock fragments; very strongly acid; abrupt smooth boundary.
- Bw1—6 to 15 inches; yellowish brown (10YR 5/4) channery silt loam; moderate fine and medium subangular blocky structure; friable; many fine and medium roots; 20 percent rock fragments; very strongly acid; clear wavy boundary.
- Bw2—15 to 22 inches; brown (10YR 5/3) channery silt loam; weak medium and coarse subangular blocky structure; friable; common fine roots; 20 percent rock fragments with few pebbles; very strongly acid; clear smooth boundary.
- E—22 to 24 inches; pale brown (10YR 6/3) channery silt loam; weak coarse subangular blocky structure; friable; few fine roots; common medium prominent brownish yellow (10YR 6/8) masses of iron accumulation within the matrix; 25 percent rock fragments; very strongly acid; clear wavy boundary.
- Bx—24 to 60 inches; dark grayish brown (10YR 4/2) very channery loam; strong very coarse prismatic structure parting to weak coarse subangular blocky; very firm, brittle; few fine roots along prism faces; common fine pores with few faint clay films along surfaces; light brownish gray (10YR 6/2) prism faces with yellowish brown (10YR 5/6) borders; common medium prominent brownish yellow (10YR 6/6) masses of iron accumulation within the matrix; 45 percent rock fragments; strongly acid.
- C—60 to 72 inches; light olive brown (2.5Y 5/4) very channery silt loam; massive; firm; 45 percent rock fragments; moderately acid.

The thickness of the solum ranges from 38 to 75 inches. The depth to bedrock is more than 60 inches. The depth to the top of the fragipan ranges from 16 to 26

inches. The content of rock fragments, consisting mainly of channers and flagstones ranges, by volume, from 5 to 35 percent above the fragipan, from 15 to 50 percent in the fragipan, and from 15 to 60 percent in the substratum. Redoximorphic features are present beginning at a depth of 12 to 24 inches. Reaction ranges from very strongly acid to moderately acid in the Ap and Bw horizons, from very strongly acid to slightly acid in the E horizon and fragipan, and from strongly acid to slightly acid in the substratum.

The Ap horizon has hue of 7.5YR to 2.5Y, value of 3 or 4, and chroma of 2 to 4. The texture of the fine earth fraction is silt loam, silty clay loam, or loam.

The Bw horizon has hue of 7.5YR to 2.5Y, value of 4 to 6, and chroma of 3 to 8. The texture of the fine earth fraction is silt loam, loam, or fine sandy loam. Structure is weak or moderate subangular blocky. Consistence is friable or very friable.

The E horizon has hue of 7.5YR to 5Y, value of 5 or 6, and chroma of 2 or 3. The texture of the fine earth fraction is silt loam, fine sandy loam, or loam. Structure is weak medium or coarse, platy or subangular blocky. Consistence is friable or firm.

The Bx horizon has hue of 7.5YR to 5Y, value of 3 to 5, and chroma of 2 to 4. The texture of the fine earth fraction is silt loam or loam. Structure is coarse or very coarse prismatic with platy, blocky, or massive interiors. It has faint to prominent redoximorphic features. Consistence is firm or very firm, and is brittle.

The C horizon has colors and textures similar to those of the Bx horizon. The material is massive or has plate like divisions. Consistence is firm or very firm.

## Williamson Series

The Williamson series consists of very deep, moderately well drained, nearly level to strongly sloping soils on lacustrine plains or basins. These soils formed in silty lacustrine deposits that have a high content of silt and very fine sand. Slopes range from 0 to 15 percent.

The Williamson soils are in a drainage sequence that includes the somewhat poorly drained Wallington soils. They are associated with Swormville, Unadilla, Scio, Elnora, Tonawanda and Canaseraga soils. Williamson soils have a fragipan that is not typical of Swormville, Unadilla, Scio, Elnora or Tonawanda soils. They are better drained than Swormville and Tonawanda soils, and are not so sandy as Elnora soils. They do not have the fine textured mantle that is typical of Swormville soils. They do not have the rock fragments in the substratum that is typical of Canaseraga soils.

Typical pedon of Williamson silt loam, 3 to 8 percent slopes; in the town of Ashford; 650 yards south of Riceville Road and McLaughlin Road, 350 yards west of McLaughlin Road:

- Ap—0 to 8 inches; dark grayish brown (10YR 4/2) silt loam; weak fine and medium granular structure; very friable; many fine roots; moderately acid; clear smooth boundary.
- Bw—8 to 14 inches; yellowish brown (10YR 5/4) silt loam; weak medium subangular blocky structure; friable; common fine roots; many fine pores; strongly acid; clear wavy boundary.
- E—14 to 20 inches; pale brown (10YR 6/3) silt loam; weak medium platy structure; friable; few fine roots; common pores; common medium distinct strong brown (7.5YR 5/8) masses of iron accumulation; strongly acid; abrupt wavy boundary.
- Bx—20 to 38 inches; dark yellowish brown (10YR 4/4) silt loam; moderate very coarse prismatic structure; very firm, brittle; few roots along upper prism faces; prisms separated by pale brown (10YR 6/3) silt with yellowish brown (10YR 5/6) outer borders; common medium distinct strong brown (7.5YR 5/6) masses of iron accumulation and grayish brown (10YR 5/2) iron depletions within the matrix; strongly acid; clear smooth boundary.

C1—38 to 54 inches; brown (10YR 5/3) silt loam; weak medium and thick plate like divisions; firm; common medium distinct strong brown (7.5YR 5/6) masses of iron accumulation and grayish brown (2.5Y 5/2) iron depletions within the matrix; moderately acid; clear wavy boundary.

C2—54 to 72 inches; olive brown (2.5Y 4/3) silt loam with varves of very fine sandy loam; massive; firm; moderately acid.

The thickness of solum ranges from 35 to 60 inches. The depth to the top of the fragipan ranges from 15 to 24 inches. The depth to bedrock is more than 60 inches. The content of rock fragments ranges, by volume, from 0 to 5 percent throughout the profile. Reaction ranges from very strongly acid to moderately acid in the solum, and strongly acid to neutral in the substratum.

The Ap horizon has hue of 7.5YR to 2.5Y, value of 3 to 5, and chroma of 2 or 3. The texture is fine sandy loam to silt loam.

The Bw horizon has hue of 5YR to 2.5Y, value of 4 to 6, and chroma of 3 to 6. The texture is very fine sandy loam or silt loam. Structure is very weak to moderate, granular, angular blocky, or subangular blocky. Consistence is friable or very friable.

The E horizon has hue of 5YR to 2.5Y, value of 5 to 7 and chroma of 2 to 4. It has few to many, distinct or prominent redoximorphic features. It is silt loam or very fine sandy loam. The horizon is massive, or has weak or moderate, thin or medium platy structure.

The Bx horizon has hues of 5YR to 2.5Y, values of 4 or 5, and chroma of 2 to 4. It has few or common, medium or coarse, faint to prominent redoximorphic features. The texture is silt loam or very fine sandy loam. Structure is weak or moderate, very coarse prismatic, and parts to platy structure in some pedons. Consistence is firm or very firm and brittle.

The C horizon has hue of 5YR to 2.5Y, value of 4 or 5, and chroma of 2 to 4. The texture is silt loam or very fine sandy loam and is commonly stratified. Some pedons have a texture of loamy very fine sand below depths of 40 inches. The C horizon is massive or has plate like divisions inherited from depositional layers.

## **Wiscoy Series**

The Wiscoy series consists of very deep, somewhat poorly drained, gently sloping to strongly sloping soils on elevated lake plains, and on toeslopes of valley sides. These soils formed in a thin mantle of glacial till underlain with silty lacustrine deposits. They have a fragipan. Slopes range from 3 to 15 percent.

Wiscoy soils are in a drainage sequence that includes the moderately well drained Rushford soils. They are associated with Dalton, Erie, Volusia, Schuyler and Towerville soils. They have a fragipan that is lacking in the Schuyler soils, and are deeper to bedrock than Towerville soils. They do not have a mantle of silty material that is present in Dalton soils. They are underlain with silty lacustrine material that is lacking in Erie and Volusia soils.

Typical pedon of Wiscoy channery silt loam, 3 to 8 percent slopes; in the town of Yorkshire; 50 feet north of Gunbarrel Road, and 0.3 miles east of West Town line Road:

- Ap—0 to 7 inches; very dark grayish brown (10YR 3/2) channery silt loam; moderate fine and medium granular structure; friable; many fine and common medium roots; 15 percent rock fragments; slightly acid; abrupt smooth boundary.
- Eg—7 to 12 inches; grayish brown (10YR 5/2) silt loam; moderate medium subangular blocky structure; friable; common fine roots; common fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; 10 percent rock fragments; slightly acid; clear smooth boundary.

- Bx1—12 to 22 inches; brown (10YR 5/3) channery silt loam; weak very coarse prismatic structure parting to moderate medium subangular blocky; firm, brittle; few fine roots along prism faces; prism streaks are 1/4 inch wide and prisms are 6 to 10 inches apart with gray (10YR 5/1) interiors and strong brown (7.5YR 5/6) exterior borders; common fine and medium distinct grayish brown (2.5Y 5/2) iron depletions and common fine and medium prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; 15 percent rock fragments; neutral; clear smooth boundary.
- Bx2—22 to 36 inches; grayish brown (10YR 5/2) channery silt loam; weak very coarse prismatic structure parting to moderate medium subangular blocky; very firm, brittle; prism faces are 1/4 inch wide and prisms are 14 inches apart with gray (10YR 5/1) interiors and strong brown (7.5YR 5/6) exterior borders; common medium distinct grayish brown (2.5Y 5/2) iron depletions and common medium prominent strong brown (7.5YR 5/8) masses of iron accumulation in the matrix; 20 percent rock fragments; neutral; abrupt smooth boundary.
- 2C1—36 to 47 inches; brown (10YR 5/3) silt loam; weak medium plate-like divisions; firm; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation and few medium distinct grayish brown (2.5Y 5/2) iron depletions in the matrix; neutral; abrupt smooth boundary.
- 2C2—47 to 72 inches; dark grayish brown (10YR 4/2) silty clay loam; massive; firm; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; neutral.

The thickness of the solum ranges from 26 to 40 inches. The depth to bedrock is more than 60 inches. The thickness of the loamy mantle ranges from 20 to 40 inches. The content of rock fragments, consisting of mainly gravel and subrounded channers, ranges by volume, from 10 to 30 percent in the horizons above the lacustrine materials, and from 0 to 5 percent in the horizons within the lacustrine materials. Reaction ranges from very strongly acid to neutral throughout the profile.

The Ap horizon has a hue of 7.5YR or 10YR, value of 3 or 4, and chroma of 2 or 3. The texture is loam or silt loam in the fine earth fraction.

The Eg horizon has a hue of 7.5YR to 2.5Y, value of 4 to 6, and chroma of 0 to 2. The texture is loam or silt loam in the fine earth fraction. Structure is platy or blocky. Consistence is friable or firm. It has common or many, distinct or prominent redoximorphic feature.

The Bw or Bg horizon, if it occurs, has hue of 7.5YR to 5Y, value of 4 to 6, and chroma of 2 to 6. The texture is loam, silt loam or silty clay loam in the fine earth fraction. It has blocky structure. Consistence is friable or firm. It has common or many redoximorphic features.

The Bx horizon has hue of 7.5YR to 5Y, value of 4 to 6, and chroma of 2 to 6. The texture is loam, silt loam or silty clay loam in the fine earth fraction.

Structure is coarse or very coarse prismatic with platy, blocky or massive interiors. Consistence is firm or very firm, and brittle.

The 2Bx horizon, if it occurs, has hue of 7.5YR to 5Y, value of 4 to 6, and chroma of 2 to 6. The texture is loam, silt loam, silty clay loam or silty clay. Consistence is firm or very firm.

The 2C horizon has hue of 7.5YR to 5Y, value of 3 to 5, and chroma of 1 to 4. The texture is loam, silt loam, silt, silty clay loam or silty clay. The horizon has plate-like divisions, or the material is massive. Consistence is firm.

## **Wyalusing Series**

The Wyalusing series consists of very deep, poorly drained, nearly level soils that formed in recent alluvium deposits. The Wyalusing soils are along secondary streams in head waters of the watershed. Slopes range from 0 to 3 percent.

Wyalusing soils are in the lowest positions on the landscape and therefore receive a considerable amount of runoff from the adjacent soils. They are associated with Alden, Ashville, Halsey, Holderton, and Middlebury soils. Wyalusing soils are wetter than Holderton or Middlebury soils and contain more sand in the substratum. They lack the sand and gravel content of the Halsey soils, and Wyalusing soils are frequently flooded unlike the Alden and Ashville soils, which have formed in glacial till.

Typical pedon of Wyalusing silt loam, 0 to 3 percent slopes; in the town of Farmersville; from a stream bottom adjacent to state land parking area; about 1 mile southwest of hamlet of Farmersville along NY Route 98:

- A—0 to 6 inches, very dark grayish brown (10YR 3/2) silt loam, light brownish gray (10YR 6/2) dry; moderate medium granular structure; friable; many fine and few medium roots; moderately acid; clear wavy boundary.
- Bg1—6 to 18 inches, gray (10YR 5/1) silt loam; moderate medium subangular blocky structure; friable, wet slightly sticky; common fine and medium roots; common medium distinct brown (7.5YR 4/4) masses of iron accumulation; slightly acid; clear smooth boundary.
- Bg2—18 to 22 inches; dark grayish brown (10YR 4/2) loam; weak medium subangular blocky structure; wet non-sticky; few fine roots; few medium distinct brown (7.5YR 4/4) masses of iron accumulation in the matrix; 10 percent rock fragments, consisting mainly of fine gravel; slightly acid; abrupt wavy boundary.
- Bg3—22 to 27 inches, dark gray (10YR 4/1) gravelly fine sandy loam; weak fine subangular blocky structure; wet non-sticky; 20 percent rock fragments, consisting mainly of gravel; few fine faint brown (10YR 4/3) masses of iron accumulation; slightly acid; abrupt smooth boundary.
- 2C—27 to 72 inches, dark grayish brown (10YR 4/2) very gravelly loamy sand; massive, with some stratification; wet non-sticky; 50 percent rock fragments, consisting mainly of gravel; slightly acid.

The thickness of the solum and depth to contrasting material ranges from 24 to 36 inches. The depth to bedrock is more than 60 inches. The content of rock fragments, consisting mainly of gravel and cobbles, range by volume, from 0 to 20 percent in the solum and C horizon and from 0 to 70 percent in the 2C horizon. Reaction ranges from strongly acid to slightly acid throughout the profile.

The A horizon has hue of 2.5Y to 10YR, value of 3 to 6, and chroma of 1 or 2. The texture is silt loam, loam or fine sandy loam in the fine earth fraction.

The B horizon has hue of 2.5Y to 10YR, value of 4 to 6, and chroma of 1 or 2. It has many to common redoximorphic features. The texture is silt loam, loam or fine sandy loam in the fine earth fraction. Structure is weak or moderate subangular blocky or prismatic parting to weak, fine subangular blocky.

The C horizon has hue of 5GY to 10YR, value of 4 or 5, and chroma of 0 to 2. This horizon has high and low chroma redoximorphic features. The texture is fine sandy loam or loam in the fine earth fraction.

The 2C horizon has colors similar to those of the C horizon but the texture is loamy sand or sand in the fine earth fraction.

## Yorkshire Series

The Yorkshire series consists of very deep, moderately well drained, gently sloping to moderately steep soils on till plains and upland plateau at elevations above 1,800 feet. These soils formed in glacial till derived mainly from siltstone, sandstone, and shale. Slopes range from 3 to 25 percent.

The Yorkshire soils are in a drainage sequence that includes the somewhat poorly drained Napoli soils. They are associated with Almond, Ischua, Gretor, Salamanca, and Willdin soils. They are deeper to bedrock than Ischua and Gretor soils. They have

a fragipan that is lacking in Almond and Salamanca soils. They have more clay accumulation in the subsoil than Willdin soils and are not as acid.

Typical pedon of Yorkshire channery silt loam, 8 to 15 percent slope; in the town of Ischua; in a cropped field 50 feet east of Union Hill Road, about 200 feet south of Yankee Hill Road:

- Ap—0 to 8 inches; dark grayish brown (10YR 4/2) channery silt loam; moderate fine and medium granular structure; very friable; many fine roots; 20 percent rock fragments; moderately acid; abrupt smooth boundary.
- Bw1—8 to 13 inches; yellowish brown (10YR 5/6) channery silt loam; weak fine and medium subangular blocky structure; very friable; common fine roots; 20 percent rock fragments; strongly acid; clear wavy boundary.
- Bw2—13 to 17 inches; yellowish brown (10YR 5/4) channery silt loam; weak medium subangular blocky structure; friable; few fine roots; common medium distinct grayish brown (2.5Y 5/2) iron depletions and brown (7.5YR 4/4) masses of iron accumulation in the matrix; 20 percent rock fragments; strongly acid; clear wavy boundary.
- E—17 to 19 inches; brown (10YR 5/3) channery loam; weak thin platy structure; friable; common medium faint grayish brown (10YR 5/2) iron depletions in the matrix; 15 percent rock fragments; strongly acid; abrupt irregular boundary.
- Btx1—19 to 31 inches; olive brown (2.5Y 4/4) channery silt loam; moderate very coarse prismatic structure that parts to weak medium subangular blocky; firm, brittle; prisms are 16 to 28 inches across; gray (10YR 5/1) faces of prisms and brown (7.5YR 4/4) borders; streaks are 1/4 inch to 1-1/2 inches wide; common fine brown (10YR 4/3) clay films on all faces of peds and on surfaces along pores; distinct very dark gray (10YR 3/1) manganese concretions; common medium distinct grayish brown (10YR 5/2) iron depletions and strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; 25 percent rock fragments; slightly acid; clear wavy boundary.
- Btx2—31 to 56 inches; olive brown (2.5Y 4/4) channery silty clay loam; moderate very coarse prismatic structure that parts to weak medium subangular blocky; firm, brittle; prism faces are gray (10YR 5/1) with brown (7.5YR 4/4) borders; common fine brown (10YR 4/3) clay films on all faces of peds and brown (10YR 5/3) clay films on surfaces along tubular pores; distinct very dark gray (10YR 3/1) manganese concretions; common medium distinct yellowish brown (10YR 5/4) masses of iron accumulation and dark grayish brown (10YR 4/2) iron depletions in the matrix; 20 percent rock fragments; slightly acid; clear wavy boundary.
- C—56 to 72 inches; olive brown (2.5Y 4/4) channery silt loam; massive; firm; few fine faint grayish brown (10YR 5/2) clay films on surfaces along pores; common medium faint yellowish brown (10YR 5/4) masses of iron accumulation in the matrix; 30 percent rock fragments; moderately acid.

The thickness of the solum ranges from 30 to 60 inches. The depth to bedrock is more than 60 inches. The depth to the top of the fragipan ranges from 16 to 30 inches. The content of rock fragments, consisting mainly of channers and flagstones, ranges, by volume, from 5 to 35 percent in the surface layer and upper part of the subsoil, from 15 to 40 percent in the lower part of the subsoil, and from 20 to 60 percent in the substratum. Reaction ranges from very strongly acid to slightly acid in the surface layer, from very strongly acid to moderately acid in the Bw and E horizons, from very strongly acid to slightly acid in the fragipan, and from strongly acid to neutral in the substratum.

The Ap horizon has hue of 10YR or 7.5YR, value of 3 or 4, and chroma of 1 to 4. The texture is silt loam or silty clay loam in the fine earth fraction.

The Bw horizon has hue of 7.5YR to 2.5Y, value of 4 to 6, and chroma of 3 to 6. The texture is silt loam, loam or silty clay loam in the fine earth fraction. Structure is

weak or moderate subangular blocky or granular. Consistence is very friable or friable.

The E horizon has hue of 7.5YR to 2.5Y, value of 5 or 6, and chroma of 2 to 4. The texture is silt loam or loam in the fine earth fraction. Structure is weak or moderate, subangular blocky or platy structure. Consistence is very friable or friable.

The Btx horizon has hue of 7.5YR to 5Y, value of 4 to 6, and chroma of 3 to 5. It has low and high chroma redoximorphic features in the upper 10 inches of the horizon. The texture is silt loam, loam, silty clay loam or clay loam in the fine earth fraction. Structure is prismatic, blocky or platy. Consistence is firm or very firm, and brittle.

The C horizon has hue of 5YR to 5Y, value of 3 to 6, and chroma of 2 to 6. The texture is loam, silt loam, silty clay loam or clay loam in the fine earth fraction. This horizon is massive or has plate-like divisions. Consistence is firm or very firm.

## Formation of the Soils

The first part of this section describes the factors of soil formation and relates them to the soils in the survey area. The second part defines the processes of horizon development as they relate to soil formation in the area.

## Factors of Soil Formation

Soils are the product of weathering and other physical or chemical processes that act on parent material. The properties of a soil at a given point on the earth's surface depend on a combination of several factors of soil formation: parent material, relief, climate, plant and animal life, and time. The relative influence of each of these factors differs from place to place, and each factor modifies the effect of the others. For example, the impact of climate over a given area is tempered by the nature of the relief or of the parent material. In many areas the influence of a single factor is dominant.

#### **Parent Material**

Parent material is the unconsolidated earthy material in which soils form. It influences the physical, chemical, and mineralogical composition of the soils. It also influences the rate at which soil-forming processes take place.

Most of the soils in Cattaraugus County formed in glacial deposits. Glacial till is the most extensive type of parent material in the survey area. Less extensive are deposits of glacial outwash, alluvium, lacustrine material, and organic material (figs. 19 and 20). A small number of unglaciated soils formed in residuum, of material weathered from the underlying interbedded shale, siltstone, and sandstone.

Table 26 shows the relationship between parent material, landscape position, and drainage class of the soils in Cattaraugus County.

Soils that formed in glacial till exhibit a wide range of characteristics as a result of the heterogeneous nature of the till. Some soils that formed in very deep glacial till, such as Mardin and Volusia soils, have a dense substratum. Some soils that formed in very deep, coarser textured till, such as Cattaraugus and Busti soils, do not have a dense layer. In some places the glacial till is moderately deep or shallow over bedrock. Hornell soils are moderately deep over shale and siltstone. Towerville and Orpark soils are moderately deep over interbedded siltstone, shale, and sandstone. Some areas have bedrock exposed at the surface.

As the glacial ice melted, large quantities of meltwater transported and sorted soil material and rock debris. This material, referred to as glacial outwash, was redeposited in layers of sand and gravel on outwash plains, kames, eskers, and valley terraces. The coarse textured Chenango and Colonie soils are examples of soils that formed in this material. Beach ridges along the borders of former glacial lakes were formed as the result of sorting and depositing of soil particles by waves. Chenango soils formed in these medium to coarse textured deposits.

In more recent times, overflowing streams have deposited alluvial material on the flood plains. This material tends to be variable in texture. Examples of soils that

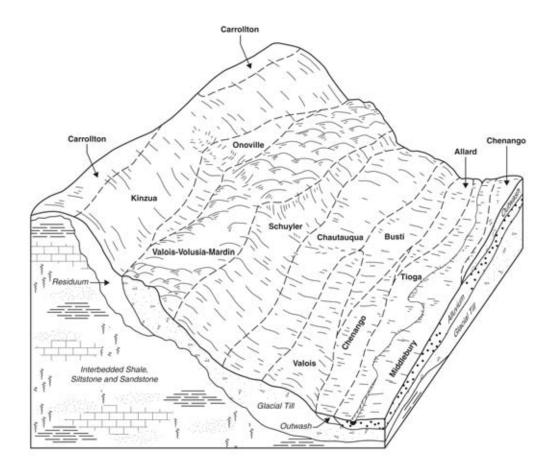


Figure 19.—Representative landscape showing soils that formed in residual material, glacial till, glacial outwash, or alluvium.

formed in this material are Hamlin soils, which formed in moderately fine textured alluvium, and Tioga soils, which formed in coarse textured material.

At one time, many of the larger valleys and the lake plain area in the northwestern part of Cattaraugus County contained glacial lakes in which meltwater was trapped. The bulk of the stone-free sediment that was deposited from this meltwater was clayey or silty lacustrine material. Rhinebeck, Niagara, and Canandaigua soils formed in these fine textured or medium textured deposits.

An area a few square miles in size at elevations between 1,800 and 2,100 feet in the southwest corner of the county is mantled with unglaciated material. This material weathered from the underlying interbedded shale, siltstone, and sandstone. Ivory and Onoville soils formed in the mantle of unglaciated material.

## Relief

The shape of the land surface, the slope, and the position of the land surface in relation to the water table have had a great influence on the formation of the soils in the survey area. Soils that formed in convex positions, where little or no runoff accumulates, commonly are well drained and do not have gray mottles in the subsoil. Valois and Chadakoin soils are examples. In the level or slightly depressional areas, the water table usually is closer to the surface for extended periods. The wetness results in the formation of gray mottles close to the surface and commonly in the accumulation of sediment at the surface. Ashville soils are an example.

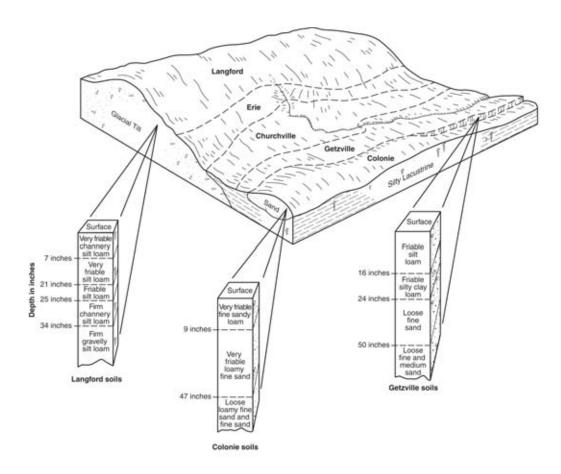


Figure 20.—Representative landscape showing the relationship of some important soils and their parent material. The exaggerated schematics represent some typical soil profiles.

## Climate

Climate is one of the most influential soil-forming factors. It determines to a large degree the kind of weathering processes that occur. It also affects the growth and kind of vegetation and the leaching and translocation of weathered material.

Cattaraugus County has a humid, temperate climate that tends to promote the development of moderately weathered, leached soils. More detailed and specific data on the climate of Cattaraugus County is provided in the section "General Nature of the County."

## **Plant and Animal Life**

All living organisms, including plants, animals, bacteria, and fungi, influence soil formation. Vegetation generally is responsible for the amount of organic matter and nutrients in the soil and for the color and structure of the surface layer. Earthworms and burrowing animals help to keep the soil porous and more permeable to air and water. Their waste products cause the aggregation of soil particles and improve soil structure. Bacteria and fungi decompose vegetation, which results in the release of nutrients.

The original vegetation in the survey area was native forest consisting of northern hardwoods and pines. The loss of nutrients through leaching is slow under hardwoods because the trees take up large quantities of nutrients and return much of

them to the surface each year as leaf litter. Conifers, such as pines, do not use large amounts of nutrients; therefore, leaching is more rapid under them than it is under hardwoods.

In many of the soils on uplands, the rooting depth is shallow and the trees are susceptible to windthrow. As a result, the soil materials have been mix

Human activity, such as the clearing of trees and the cultivating of land, also has influenced formation of the soils. Nutrients that have been added as fertilizer are applied, plowing has mixed some soil horizons, and erosion has been accelerated in many areas.

#### Time

The degree of profile development reflects not only the age of a soil but also the influence of other factors. In geological terms, the deposits in which the soils in the survey area formed are relatively young, having been deposited when the last glacier receded about 10,000 to 15,000 years ago.

The soils have not all reached the same stage of soil profile development, because the other soil-forming factors also influence the rate of soil profile development. Since the time factor is constant within the county, differences in appearance and in the depth of the weathering have been mostly influenced by differences in parent material.

An immature soil is one that has not had enough time to develop distinct horizons. Fluvaquents are a good example. These soils formed in recent alluvium that is regularly being flooded and receiving more deposits of sediment. Because the time in which soil development can take place is constantly being interrupted, only thin or irregular soil profiles have developed.

## **Processes of Soil Formation**

The soil-forming processes result in the development of distinct layers, or soil horizons. These horizons can be viewed in a vertical cut of soil, known as a soil profile. The soil profile extends from the surface downward into material that is little altered by the soil-forming processes. Most soils contain three major horizons, called A, B, and C horizons.

Several processes are involved in the formation of soil horizons. These processes include the accumulation of organic material, the leaching of soluble salts and minerals, the translocation of clay minerals, the reduction and transfer of iron, and the formation of dense, compact layers in the subsoil (Grossman, Carlisle; 1969).

The accumulation of organic matter takes place as plant residue decomposes. This process darkens the surface layer and helps to form an A horizon. It takes a long time to replace this organic matter once it has been lost. The organic matter content of the surface layer of the soils in the survey area averages about 5 percent.

For soils to develop a distinct subsoil, some of the lime and other soluble salts must be leached before other soil processes, such as the translocation of clay minerals, can take place. Factors that affect the leaching include the kinds of salts originally present, the rate and depth of percolation, and the texture of the soil.

One of the more important processes of horizon development in some of the soils is the translocation of silicate clay mineral. The amount of clay minerals in a soil is inherent in the parent material, but the content of clay varies from one soil horizon to another. Clay particles are transported (eluviated) downward from the A horizon and redeposited (illuviated) in the B horizon as clay films on the faces of peds, as linings along pores and root channels, and as coatings on some coarse fragments. Darien soils are an example of soils in which the content of clay is higher in the B horizon than in the A horizon because of translocation. In some soils an E horizon has formed

below the A horizon as a result of considerable eluviation of clay minerals to the B horizon.

The reduction and transfer of iron compounds occur mainly in the wetter, more poorly drained soils. This process is known as gleying. In poorly drained and very poorly drained soils, such as those of the Alden series, the grayish color of the subsoil indicates that the reduction of iron has taken place. In moderately well drained and somewhat poorly drained soils, such as those of the Chautauqua and Busti series, yellowish brown and reddish brown mottles indicate the segregation of iron compounds. The presence of a bright-colored, unmottled subsoil indicates that the soils are well drained and that no reduction or transfer of iron has taken place. Valois soils, for example, are well drained and do not have mottles in the subsoil.

In some of the soils in Cattaraugus County, a distinct fragipan has developed in the subsoil. The fragipan is very firm and brittle when moist and is very hard when dry. Its swelling and shrinking in alternating wet and dry periods may result in the dense packing of soil particles, the low pore space, and the gross polygonal pattern of vertical cracks that are characteristic of most fragipans (Grossman, Carlisle; 1969). Clay, silica, and oxides of aluminum are the cementing agents that cause brittleness and hardness. Erie, Langford, Mardin, Onoville and Volusia soils have a well expressed fragipan.

Many well drained and moderately well drained soils in the county, such as Chenango and Scio soils, have a strong brown, yellowish brown, or reddish brown subsoil. These colors are mainly caused by thin coatings of iron oxides on the sand and silt particles. The subsoil commonly has subangular blocky structure but contains little or no clay translocated from the surface layer.

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# **Glossary**

- **Ablation till.** Loose, permeable till deposited during the final downwasting of glacial ice. Lenses of crudely sorted sand and gravel are common.
- **Aeration, soil.** The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.
- **Aggregate, soil.** Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.
- **Alkali (sodic) soil.** A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.
- **Alluvial fan.** The fanlike deposit of a stream where it issues from a gorge upon a plain or of a tributary stream near or at its junction with its main stream.
- Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.
- **Aquic conditions.** Current soil wetness characterized by saturation, reduction, and redoximorphic features.
- **Argillic horizon.** A subsoil horizon characterized by an accumulation of illuvial clay. **Aspect.** The direction in which a slope faces.
- **Association, soil.** A group of soils or miscellaneous areas geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.
- Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. In most cases the capacity was calculated by using the average value within a range for each horizon in a 40-inch profile, or to a limiting layer, and is expressed as:

Very low	0 to 2.4
Low	2.4 to 3.2
Moderate	3.2 to 5.2
High	greater than 5.2.

**Backslope.** The position that forms the steepest and generally linear, middle portion of a hillslope. In profile, backslopes are commonly bounded by a convex shoulder above and a concave footslope below.

Basal till. Compact glacial till deposited beneath the ice.

- **Base saturation.** The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation-exchange capacity.
- **Base slope.** A geomorphic component of hills consisting of the concave to linear perpendicular to the contour) slope that, regardless of the lateral shape, (forms an apron or wedge at the bottom of a hillside dominated by colluvium and slopewash sediments (for example, slope alluvium).

**Bedding planes.** Fine strata, less than 5 millimeters thick, in unconsolidated alluvial, eolian, lacustrine, or marine sediment.

- **Bedding system.** A drainage system made by plowing, grading, or otherwise shaping the surface of a flat field. It consists of a series of low ridges separated by shallow, parallel dead furrows.
- **Bedrock.** The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.
- **Bedrock-controlled topography.** A landscape where the configuration and relief of the landforms are determined or strongly influenced by the underlying bedrock.
- **Bench terrace.** A raised, level or nearly level strip of earth constructed on or nearly on a contour, supported by a barrier of rocks or similar material, and designed to make the soil suitable for tillage and to prevent accelerated erosion.
- **Bisequum.** Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.
- **Bottom land.** The normal flood plain of a stream, subject to flooding.
- Boulders. Rock fragments larger than 2 feet (60 centimeters) in diameter.
- **Breaks.** The steep and very steep broken land at the border of an upland summit that is dissected by ravines.
- **Brush management.** Use of mechanical, chemical, or biological methods to make conditions favorable for reseeding or to reduce or eliminate competition from woody vegetation and thus allow understory grasses and forbs to recover. Brush management increases forage production and thus reduces the hazard of erosion. It can improve the habitat for some species of wildlife.
- **Calcareous soil.** A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.
- **Capillary water.** Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.
- **Catena.** A sequence, or "chain," of soils on a landscape that formed in similar kinds of parent material but have different characteristics as a result of differences in relief and drainage.
- **Cation.** An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.
- **Cation-exchange capacity.** The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.
- **Catsteps.** Very small, irregular terraces on steep hillsides, especially in pasture, formed by the trampling of cattle or the slippage of saturated soil.
- **Cement rock.** Shaly limestone used in the manufacture of cement.
- **Channery soil material.** Soil material that has, by volume, 15 to 35 percent thin, flat fragments of sandstone, shale, slate, limestone, or schist as much as 6 inches (15 centimeters) along the longest axis. A single piece is called a channer.
- **Chemical treatment.** Control of unwanted vegetation through the use of chemicals. **Chiseling.** Tillage with an implement having one or more soil-penetrating points that shatter or loosen hard, compacted layers to a depth below normal plow depth.
- **Clay.** As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.
- **Clay depletions.** Low-chroma zones having a low content of iron, manganese, and clay because of the chemical reduction of iron and manganese and the removal of iron, manganese, and clay. A type of redoximorphic depletion.

- **Clay film.** A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.
- **Claypan.** A slowly permeable soil horizon that contains much more clay than the horizons above it. A claypan is commonly hard when dry and plastic or stiff when wet.
- **Climax plant community.** The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.
- **Coarse textured soil.** Sand or loamy sand. Cobble (or cobblestone). A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.
- **Cobbly soil material.** Material that has 15 to 35 percent, by volume, rounded or partially rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in diameter. Very cobbly soil material has 35 to 60 percent of these rock fragments, and extremely cobbly soil material has more than 60 percent.
- COLE (coefficient of linear extensibility). See Linear extensibility.
- **Colluvium.** Soil material or rock fragments, or both, moved by creep, slide, or local wash and deposited at the base of steep slopes.
- **Complex slope.** Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.
- **Complex, soil.** A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.
- Concretions. Cemented bodies with crude internal symmetry organized around a point, a line, or a plane. They typically take the form of concentric layers visible to the naked eye. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up concretions. If formed in place, concretions of iron oxide or manganese oxide are generally considered a type of redoximorphic concentration.
- Congeliturbate. Soil material disturbed by frost action.
- **Conglomerate.** A coarse grained, clastic rock composed of rounded or subangular rock fragments more than 2 millimeters in diameter. It commonly has a matrix of sand and finer textured material. Conglomerate is the consolidated equivalent of gravel.
- Conservation cropping system. Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and practices more than offset the effects of the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.
- **Conservation tillage.** A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.
- Consistence, soil. Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration; plasticity, toughness, and stickiness of puddled soil material; and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the "Soil Survey Manual."
- **Contour stripcropping.** Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

**Control section.** The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

- **Coprogenous earth (sedimentary peat).** Fecal material deposited in water by aquatic organisms.
- **Corrosion.** Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.
- **Cover crop.** A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.
- **Cropping system.** Growing crops according to a planned system of rotation and management practices.
- **Crop residue management.** Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.
- **Cross-slope farming.** Deliberately conducting farming operations on sloping farmland in such a way that tillage is across the general slope.
- **Crown.** The upper part of a tree or shrub, including the living branches and their foliage.
- **Cutbanks cave (in tables).** The walls of excavations tend to cave in or slough. **Deferred grazing.** Postponing grazing or resting grazing land for a prescribed period.
- **Dense layer (in tables).** A very firm, massive layer that has a bulk density of more than 1.8 grams per cubic centimeter. Such a layer affects the ease of digging and can affect filling and compacting.
- **Depth, soil.** Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.
- **Diversion (or diversion terrace).** A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.
- Drainage class (natural). Refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained, and very poorly drained. These classes are defined in the "Soil Survey Manual."
- Drainage, surface. Runoff, or surface flow of water, from an area.
- **Drumlin.** A low, smooth, elongated oval hill, mound, or ridge of compact glacial till. The longer axis is parallel to the path of the glacier and commonly has a blunt nose pointing in the direction from which the ice approached.
- **Duff.** A generally firm organic layer on the surface of mineral soils. It consists of fallen plant material that is in the process of decomposition and includes everything from the litter on the surface to underlying pure humus.
- **Eluviation.** The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.
- **Endosaturation.** A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.
- **Eolian soil material.** Earthy parent material accumulated through wind action; commonly refers to sandy material in dunes or to loess in blankets on the surface.

- **Episaturation.** A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.
- **Erosion.** The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.
- **Erosion (geologic).** Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.
- **Erosion (accelerated).** Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.
- **Escarpment.** A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. Synonym: scarp.
- **Esker.** A narrow, winding ridge of stratified gravelly and sandy drift deposited by a stream flowing in a tunnel beneath a glacier.
- **Fallow.** Cropland left idle in order to restore productivity through accumulation of moisture. Summer fallow is common in regions of limited rainfall where cereal grain is grown. The soil is tilled for at least one growing season for weed control and decomposition of plant residue.
- **Fan terrace.** A relict alluvial fan, no longer a site of active deposition, incised by younger and lower alluvial surfaces.
- **Fertility, soil.** The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.
- **Fibric soil material (peat).** The least decomposed of all organic soil material. Peat contains a large amount of well preserved fiber that is readily identifiable according to botanical origin. Peat has the lowest bulk density and the highest water content at saturation of all organic soil material.
- **Field moisture capacity.** The moisture content of a soil, expressed as a percentage of the ovendry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called normal field capacity, normal moisture capacity, or capillary capacity.
- Fine textured soil. Sandy clay, silty clay, or clay.
- **First bottom.** The normal flood plain of a stream, subject to frequent or occasional flooding.
- **Flaggy soil material.** Material that has, by volume, 15 to 35 percent flagstones. Very flaggy soil material has 35 to 60 percent flagstones, and extremely flaggy soil material has more than 60 percent flagstones.
- **Flagstone.** A thin fragment of sandstone, limestone, slate, shale, or (rarely) schist 6 to 15 inches (15 to 38 centimeters) long.
- **Flood plain.** A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.
- **Fluvial.** Of or pertaining to rivers; produced by river action, as a fluvial plain.
- **Footslope.** The position that forms the inner, gently inclined surface at the base of a hillslope. In profile, footslopes are commonly concave. A footslope is a transition zone between upslope sites of erosion and transport (shoulders and backslopes) and downslope sites of deposition (toeslopes).
- **Forb.** Any herbaceous plant not a grass or a sedge.
- Forest cover. All trees and other woody plants (underbrush) covering the ground in a forest
- **Forest type.** A stand of trees similar in composition and development because of given physical and biological factors by which it may be differentiated from other stands.

**Fragipan.** A loamy, brittle subsurface horizon low in porosity and content of organic matter and low or moderate in clay but high in silt or very fine sand. A fragipan appears cemented and restricts roots. When dry, it is hard or very hard and has a higher bulk density than the horizon or horizons above. When moist, it tends to rupture suddenly under pressure rather than to deform slowly.

- **Genesis**, **soil**. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.
- **Glacial drift.** Pulverized and other rock material transported by glacial ice and then deposited. Also, the sorted and unsorted material deposited by streams flowing from glaciers.
- **Glacial outwash.** Gravel, sand, and silt, commonly stratified, deposited by glacial meltwater.
- **Glacial till.** Unsorted, nonstratified glacial drift consisting of clay, silt, sand, and boulders transported and deposited by glacial ice.
- **Glaciofluvial deposits.** Material moved by glaciers and subsequently sorted and deposited by streams flowing from the melting ice. The deposits are stratified and occur as kames, eskers, deltas, and outwash plains.
- **Glaciolacustrine deposits.** Material ranging from fine clay to sand derived from glaciers and deposited in glacial lakes mainly by glacial meltwater. Many deposits are interbedded or laminated.
- **Gleyed soil.** Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.
- **Graded stripcropping.** Growing crops in strips that grade toward a protected waterway.
- **Grassed waterway.** A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.
- **Gravel.** Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.
- **Gravelly soil material.** Material that has 15 to 35 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.
- **Green manure crop (agronomy).** A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.
- **Ground water.** Water filling all the unblocked pores of the material below the water table
- **Gully.** A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.
- **Hard bedrock.** Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.
- **Hardpan.** A hardened or cemented soil horizon, or layer. The soil material is sandy, loamy, or clayey and is cemented by iron oxide, silica, calcium carbonate, or other substance.
- **Hard to reclaim (in tables).** Reclamation is difficult after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.
- **Hemic soil material (mucky peat).** Organic soil material intermediate in degree of decomposition between the less decomposed fibric material and the more decomposed sapric material.

- **High-residue crops.** Such crops as small grain and corn used for grain. If properly managed, residue from these crops can be used to control erosion until the next crop in the rotation is established. These crops return large amounts of organic matter to the soil.
- Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the "Soil Survey Manual." The major horizons of mineral soil are as follows:

O horizon. An organic layer of fresh and decaying plant residue.

A horizon. The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

*E horizon.* The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

*B horizon.* The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

*C horizon.* The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

Cr horizon. Soft, consolidated bedrock beneath the soil.

*R layer.* Consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

- **Humus.** The well decomposed, more or less stable part of the organic matter in mineral soils.
- Hydrologic soil groups. Refers to soils grouped according to their runoff potential. The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties are depth to a seasonal high water table, the infiltration rate and permeability after prolonged wetting, and depth to a very slowly permeable layer. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff.
- **Igneous rock.** Rock formed by solidification from a molten or partially molten state. Major varieties include plutonic and volcanic rock. Examples are andesite, basalt, and granite.
- **Illuviation.** The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.
- **Impervious soil.** A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.
- **Infiltration.** The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.
- **Infiltration capacity.** The maximum rate at which water can infiltrate into soil under a given set of conditions.
- **Infiltration rate.** The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Intake rate. The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

Less than 0.2very low
0.2 to 0.4low
0.4 to 0.75 moderately low
0.75 to 1.25 moderate
1.25 to 1.75 moderately high
1.75 to 2.5 high
More than 2.5 very high

**Intermittent stream.** A stream, or reach of a stream, that flows for prolonged periods only when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

**Iron depletions.** Low-chroma zones having a low content of iron and manganese oxide because of chemical reduction and removal, but having a clay content similar to that of the adjacent matrix. A type of redoximorphic depletion.

**Irrigation.** Application of water to soils to assist in production of crops. Methods of irrigation are:

Basin.—Water is applied rapidly to nearly level plains surrounded by levees or dikes.

Border.—Water is applied at the upper end of a strip in which the lateral flow of water is controlled by small earth ridges called border dikes, or borders. Controlled flooding. Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.

Corrugation. Water is applied to small, closely spaced furrows or ditches in fields of close-growing crops or in orchards so that it flows in only one direction. Drip (or trickle). Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

Furrow. Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.

*Sprinkler.* Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

Subirrigation. Water is applied in open ditches or tile lines until the water table is raised enough to wet the soil.

Wild flooding. Water, released at high points, is allowed to flow onto an area without controlled distribution.

**Kame.** An irregular, short ridge or hill of stratified glacial drift.

**Karst (topography).** The relief of an area underlain by limestone that dissolves in differing degrees, thus forming numerous depressions or small basins.

**Knoll.** A small, low, rounded hill rising above adjacent landforms.

**K**<sub>set</sub> Saturated hydraulic conductivity. (See Permeability.)

**Lacustrine deposit.** Material deposited in lake water and exposed when the water level is lowered or the elevation of the land is raised.

**Landslide.** The rapid downhill movement of a mass of soil and loose rock, generally when wet or saturated. The speed and distance of movement, as well as the amount of soil and rock material, vary greatly.

- **Large stones (in tables).** Rock fragments 3 inches (7.6 centimeters) or more across. Large stones adversely affect the specified use of the soil.
- **Leaching.** The removal of soluble material from soil or other material by percolating water.
- Linear extensibility. Refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. Linear extensibility is used to determine the shrink-swell potential of soils. It is an expression of the volume change between the water content of the clod at 1/3 or 1/10 bar tension (33kPa or 10kPa tension) and oven dryness. Volume change is influenced by the amount and type of clay minerals in the soil. The volume change is the percent change for the whole soil. If it is expressed as a fraction, the resulting value is COLE, coefficient of linear extensibility.
- **Liquid limit.** The moisture content at which the soil passes from a plastic to a liquid state.
- **Loam.** Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.
- Loess. Fine grained material, dominantly of silt-sized particles, deposited by wind.
- **Low-residue crops.** Such crops as corn used for silage, peas, beans, and potatoes. Residue from these crops is not adequate to control erosion until the next crop in the rotation is established. These crops return little organic matter to the soil.
- **Low strength.** The soil is not strong enough to support loads.
- **Marl.** An earthy, unconsolidated deposit consisting chiefly of calcium carbonate mixed with clay in approximately equal amounts.
- **Masses.** Concentrations of substances in the soil matrix that do not have a clearly defined boundary with the surrounding soil material and cannot be removed as a discrete unit. Common compounds making up masses are calcium carbonate, gypsum or other soluble salts, iron oxide, and manganese oxide. Masses consisting of iron oxide or manganese oxide generally are considered a type of redoximorphic concentration.
- **Mechanical treatment.** Use of mechanical equipment for seeding, brush management, and other management practices.
- **Medium textured soil.** Very fine sandy loam, loam, silt loam, or silt.
- **Metamorphic rock.** Rock of any origin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement. Nearly all such rocks are crystalline.
- **Mineral soil.** Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.
- **Minimum tillage.** Only the tillage essential to crop production and prevention of soil damage.
- **Miscellaneous area.** An area that has little or no natural soil and supports little or no vegetation.
- **Moderately coarse textured soil.** Coarse sandy loam, sandy loam, or fine sandy loam.
- **Moderately fine textured soil.** Clay loam, sandy clay loam, or silty clay loam.
- **Mollic epipedon.** A thick, dark, humus-rich surface horizon (or horizons) that has high base saturation and pedogenic soil structure. It may include the upper part of the subsoil.
- **Moraine.** An accumulation of earth, stones, and other debris deposited by a glacier. Some types are terminal, lateral, medial, and ground.
- **Morphology, soil.** The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

**Mottling, soil.** Irregular spots of different colors that vary in number and size. Descriptive terms are as follows: abundance—few, common, and many; size—fine, medium, and coarse; and contrast—faint, distinct, and prominent. The size measurements are of the diameter along the greatest dimension. Fine indicates less than 5 millimeters (about 0.2 inch); medium, from 5 to 15 millimeters (about 0.2 to 0.6 inch); and coarse, more than 15 millimeters (about 0.6 inch).

- **Muck.** Dark, finely divided, well decomposed organic soil material. (See Sapric soil material.)
- **Mudstone.** Sedimentary rock formed by induration of silt and clay in approximately equal amounts.
- **Munsell notation.** A designation of color by degrees of three simple variables hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.
- **Natric horizon.** A special kind of argillic horizon that contains enough exchangeable sodium to have an adverse effect on the physical condition of the subsoil.
- **Neutral soil.** A soil having a pH value of 6.6 to 7.3. (See Reaction, soil.)
- **Nodules.** Cemented bodies lacking visible internal structure. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up nodules. If formed in place, nodules of iron oxide or manganese oxide are considered types of redoximorphic concentrations.
- **Nutrient, plant.** Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.
- **Organic matter.** Plant and animal residue in the soil in various stages of decomposition. The content of organic matter in the surface layer is described as follows:

Very low	less than 0.5 percent
Low	0.5 to 1.0 percent
Moderately low	1.0 to 2.0 percent
Moderate	2.0 to 4.0 percent
High	4.0 to 8.0 percent
Very high	more than 8.0 percent

- **Outwash plain.** A landform of mainly sandy or coarse textured material of glaciofluvial origin. An outwash plain is commonly smooth; where pitted, it generally is low in relief.
- **Paleoterrace.** An erosional remnant of a terrace that retains the surface form and alluvial deposits of its origin but was not emplaced by, and commonly does not grade to, a present-day stream or drainage network.
- **Pan.** A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, hardpan, fragipan, claypan, plowpan, and traffic pan.
- Parent material. The unconsolidated organic and mineral material in which soil forms
- **Peat.** Unconsolidated material, largely undecomposed organic matter, that has accumulated under excess moisture. (See Fibric soil material.)
- **Ped.** An individual natural soil aggregate, such as a granule, a prism, or a block.
- **Pedon.** The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.
- **Percolation.** The movement of water through the soil.

**Permafrost.** Layers of soil, or even bedrock, occurring in arctic or subarctic regions, in which a temperature below freezing has existed continuously for a long time.

Permeability. The quality of the soil that enables water or air to move downward through the profile. The rate at which a saturated soil transmits water is accepted as a measure of this quality. In soil physics, the rate is referred to as "saturated hydraulic conductivity," which is defined in the "Soil Survey Manual." In line with conventional usage in the engineering profession and with traditional usage in published soil surveys, this rate of flow continues to be expressed as "permeability." Terms describing permeability, measured in inches per hour, are as follows:

Impermeable	less than 0.0015 inch
Very slow	0.0015 to 0.06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

- **Phase, soil.** A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.
- **pH value.** A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)
- **Piping (in tables).** Formation of subsurface tunnels or pipelike cavities by water moving through the soil.
- **Plasticity index.** The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.
- Plastic limit. The moisture content at which a soil changes from semisolid to plastic.
- **Plateau.** An extensive upland mass with relatively flat summit area that is considerably elevated (more than 100 meters) above adjacent lowlands and separated from them on one or more sides by escarpments.
- **Plowpan.** A compacted layer formed in the soil directly below the plowed layer.
- **Ponding.** Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.
- **Poorly graded.** Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only lightly by compaction.
- **Potential rooting depth (effective rooting depth).** Depth to which roots could penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.
- **Productivity, soil.** The capability of a soil for producing a specified plant or sequence of plants under specific management.
- **Profile, soil.** A vertical section of the soil extending through all its horizons and into the parent material.
- **Proper grazing use.** Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.
- **Reaction, soil.** A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid	less than 3.5
Extremely acid	3.5 to 4.4
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Moderately acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Slightly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher.

- **Red beds.** Sedimentary strata that are mainly red and are made up largely of sandstone and shale.
- **Redoximorphic concentrations.** Nodules, concretions, soft masses, pore linings, and other features resulting from the accumulation of iron or manganese oxide. An indication of chemical reduction and oxidation resulting from saturation.
- **Redoximorphic depletions.** Low-chroma zones from which iron and manganese oxide or a combination of iron and manganese oxide and clay has been removed. These zones are indications of the chemical reduction of iron resulting from saturation.
- **Redoximorphic features.** Redoximorphic concentrations, redoximorphic depletions, reduced matrices, a positive reaction to alpha, alpha-dipyridyl, and other features indicating the chemical reduction and oxidation of iron and manganese compounds resulting from saturation.
- **Reduced matrix.** A soil matrix that has low chroma in situ because of chemically reduced iron (Fe II). The chemical reduction results from nearly continuous wetness. The matrix undergoes a change in hue or chroma within 30 minutes after exposure to air as the iron is oxidized (Fe III). A type of redoximorphic feature.
- **Regolith.** The unconsolidated mantle of weathered rock and soil material on the earth's surface; the loose earth material above the solid rock.
- Relief. The elevations or inequalities of a land surface, considered collectively.

  Residuum (residual soil material). Unconsolidated, weathered or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.
- **Rill.** A steep-sided channel resulting from accelerated erosion. A rill generally is a few inches deep and not wide enough to be an obstacle to farm machinery.
- **Road cut.** A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.
- **Rock fragments.** Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.
- **Root zone.** The part of the soil that can be penetrated by plant roots.
- **Runoff.** The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.
- **Saline soil.** A soil containing soluble salts in an amount that impairs growth of plants. A saline soil does not contain excess exchangeable sodium.
- **Sand.** As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.
- **Sandstone.** Sedimentary rock containing dominantly sand-sized particles. **Sapric soil material (muck).** The most highly decomposed of all organic soil

- material. Muck has the least amount of plant fiber, the highest bulk density, and the lowest water content at saturation of all organic soil material.
- **Saprolite.** Unconsolidated residual material underlying the soil and grading to hard bedrock below.
- **Saturation.** Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.
- **Second bottom.** The first terrace above the normal flood plain (or first bottom)of a river.
- **Sedimentary rock.** Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from clay; and limestone, formed from soft masses of calcium carbonate. There are many intermediate types. Some wind-deposited sand is consolidated into sandstone.
- **Series, soil.** A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.
- **Shale.** Sedimentary rock formed by the hardening of a clay deposit.
- **Sheet erosion.** The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.
- **Shoulder.** The position that forms the uppermost inclined surface near the top of a hillslope. It is a transition from backslope to summit. The surface is dominantly convex in profile and erosional in origin.
- **Shrink-swell (in tables).** The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.
- **Side slope.** A geomorphic component of hills consisting of a laterally planar area of a hillside. The overland waterflow is predominantly parallel.
- Silica. A combination of silicon and oxygen. The mineral form is called quartz.
- **Silica-sesquioxide ratio.** The ratio of the number of molecules of silica to the number of molecules of alumina and iron oxide. The more highly weathered soils or their clay fractions in warm-temperate, humid regions, and especially those in the tropics, generally have a low ratio.
- **Silt.** As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.
- Siltstone. Sedimentary rock made up of dominantly silt-sized particles.
- **Similar soils.** Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.
- Sinkhole. A depression in the landscape where limestone has been dissolved.
- **Site index.** A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.
- **Slickensides.** Polished and grooved surfaces produced by one mass sliding past another. In soils, slickensides may occur at the bases of slip surfaces on the steeper slopes; on faces of blocks, prisms, and columns; and in swelling clayey soils, where there is marked change in moisture content.
- **Slope.** The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance. In this survey, classes for simple slopes are as follows:

Nearly level	0 to 3 percent
Gently sloping	3 to 8 percent
Strongly sloping	8 to 15 percent
Rolling	3 to 15 percent
Moderately steep	15 to 25 percent
Steep	25 to 35 percent
Very steep	35 percent and higher

- **Sloughed till.** Water-saturated till that has flowed slowly downhill from its original place of deposit by glacial ice. It may rest on other till, on glacial outwash, or on a glaciolacustrine deposit.
- **Slow refill (in tables).** The slow filling of ponds, resulting from restricted permeability in the soil.
- **Sodic (alkali) soil.** A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.
- **Sodicity.** The degree to which a soil is affected by exchangeable sodium. Sodicity is expressed as a sodium adsorption ratio (SAR) of a saturation extract, or the ratio of Na+ to Ca++ + Mg++. The degrees of sodicity and their respective ratios are:

Slight	less than 13:1
Moderate	13-30:1
Strong	more than 30:1

- **Sodium adsorption ratio (SAR).** A measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration.
- **Soft bedrock.** Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.
- **Soil.** A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.
- **Soil separates.** Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	less than 0.002

- **Solum.** The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. The living roots and plant and animal activities are largely confined to the solum.
- **Stone line.** A concentration of coarse fragments in a soil. Generally, it is indicative of an old weathered surface. In a cross section, the line may be one fragment or more thick. It generally overlies material that weathered in place and is overlain by recent sediment of variable thickness.

- **Stones.** Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.
- **Stony.** Refers to a soil containing stones in numbers that interfere with or prevent tillage.
- **Stripcropping.** Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to wind erosion and water erosion.
- **Structure, soil.** The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are *platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grained* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).
- **Stubble mulch.** Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind erosion and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.
- **Subsoil.** Technically, the B horizon; roughly, the part of the solum below plow depth. **Subsoiling.** Tilling a soil below normal plow depth, ordinarily to shatter a hardpan or claypan.
- **Substratum.** The part of the soil below the solum.
- Subsurface layer. Any surface soil horizon (A, E, AB, or EB) below the surface layer.
- **Summer fallow.** The tillage of uncropped land during the summer to control weeds and allow storage of moisture in the soil for the growth of a later crop. A practice common in semiarid regions, where annual precipitation is not enough to produce a crop every year. Summer fallow is frequently practiced before planting winter grain.
- **Summit.** The topographically highest position of a hillslope. It has a nearly level (planar or only slightly convex) surface.
- **Surface layer.** The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."
- **Surface soil.** The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.
- **Talus.** Fragments of rock and other soil material accumulated by gravity at the foot of cliffs or steep slopes.
- **Taxadjuncts.** Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior. Soils are recognized as taxadjuncts only when one or more of their characteristics are slightly outside the range defined for the family of the series for which the soils are named.
- **Terminal moraine.** A belt of thick glacial drift that generally marks the termination of important glacial advances.
- **Terrace.** An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field generally is built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.
- **Terrace (geologic).** An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.
- **Texture, soil.** The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay

- loam, silty clay loam, sandy clay, silty clay, and clay. The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."
- **Thin layer (in tables).** Otherwise suitable soil material that is too thin for the specified use.
- **Till plain.** An extensive area of nearly level to undulating soils underlain by glacial till. **Tilth, soil.** The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.
- **Toeslope.** The position that forms the gently inclined surface at the base of a hillslope. Toeslopes in profile are commonly gentle and linear and are constructional surfaces forming the lower part of a hillslope continuum that grades to valley or closed-depression floors.
- **Topsoil.** The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.
- **Trace elements.** Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, in soils in extremely small amounts. They are essential to plant growth.
- Tuff. A compacted deposit that is 50 percent or more volcanic ash and dust.
- **Upland.** Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.
- **Valley fill.** In glaciated regions, material deposited in stream valleys by glacial meltwater. In nonglaciated regions, alluvium deposited by heavily loaded streams.
- **Variegation.** Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.
- Varve. A sedimentary layer or a lamina or sequence of laminae deposited in a body of still water within a year. Specifically, a thin pair of graded glaciolacustrine layers seasonally deposited, usually by meltwater streams, in a glacial lake or other body of still water in front of a glacier.
- **Water bars.** Smooth, shallow ditches or depressional areas that are excavated at an angle across a sloping road. They are used to reduce the downward velocity of water and divert it off and away from the road surface. Water bars can easily be driven over if constructed properly.
- **Weathering.** All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.
- **Well graded.** Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.
- Wilting point (or permanent wilting point). The moisture content of soil, on an ovendry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.
- **Windthrow.** The uprooting and tipping over of trees by the wind.

## **Tables**

Table 1.—Temperature and Precipitation
(Recorded in the period 1948-1999 at Little Valley, New York

		Temperatu	ıre (Degre	ees F.)				Precip	pitatio	n (Inches)	
	 			2 years		Average	 	2 years	s in 10 nave	Average	
Month	daily maximum	daily minimum	Average	Maximum  temperature   higher   than	   Minimum   temperature   lower   than	number of   growing   degree   days*	Average       	Less than	more than	number of  days with  0.10 inch   or more	Average snowfall
	° <u>F</u>	° <u>F</u>	o <u>F</u>	° <u>F</u>	° <u>F</u>	Units	<u>In</u>	In	<u>In</u>	Days	In
January	   30.4	13.0	21.7	   58	   -17 	   <b>7</b>	   3.86	   2.70	   4.93	   12	34.0
February	32.3	12.6	22.5	59	   -16	7	3.15	1.92	4.26	   9	25.8
March	40.6	20.2	30.4	72	   -8 	   42	3.75	2.43	4.94	10	20.9
April	53.8	31.3	42.5	82	11	165	3.98	2.97	4.93	10	6.5
May	66.0	40.2	53.1	87	   24	   408	3.74	2.24	5.08	   8	0.3
June	75.0	49.7	62.3	90	33	667	4.43	2.63	6.04	   8	0.0
July	79.2	54.1	66.6	91	   40	   824 	4.13	2.61	5.50	   8	0.0
August	77.2	52.7	65.0	90	   37	   776	4.16	2.57	5.58	   8	0.0
September-	69.7	46.6	58.2	88	   29	543	4.38	2.65	5.92	   8	0.0
October	   58.9	36.8	47.9	80	20	   269	3.85	1.98	5.49	   8	1.2
November	45.7	29.2	37.4	70	   8	   79	4.84	3.27	6.27	12	18.0
December	   34.3 	19.1	26.7	61	-11	   15 	   4.39 	   3.35 	   5.37 	13     13	39.1
Yearly :	<u> </u> 						<u> </u> 	<u> </u> 		 	
Average-	   55.3	33.8	44.5			 			 		
Extreme-	   96	-28		92	   -20			 	 		
Total	 				 	3801	48.65	41.83	53.64	114	145.8

Average # of days per year with at least 1 inch of snow on the ground: 94

<sup>\*</sup> A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (Threshold: 40.0 deg. F)

Table 2.—Freeze Dates in Spring and Fall (Recorded in the period 1948 to 1999 at Little Valley, New York.)

	ļ	Temperature	
Probability	24 <sup>o</sup> F or lower	28 <sup>O</sup> F	32 <sup>0</sup> F or lower
Last freezing temperature in spring:			
1 year in 10 later than-	May 7	May 21	June 6
2 year in 10 later than-	May 2	May 16	June 2
5 year in 10 later than-	Apr. 23	May 7	   May 24
First freezing temperature in fall:	     		 
1 yr in 10 earlier than-	Oct. 8	Sept. 26	Sept. 9
2 yr in 10 earlier than-	Oct. 15	Oct. 2	Sept. 15
5 yr in 10 earlier than-	Oct. 27	Oct. 14	   Sept. 26

Table 3.—Growing Season (Recorded in the period 1948 to 1999 at Little Valley, New York.)

		mum temperature rowing season	
Probability	Higher than 24 <sup>0</sup> F	Higher   than   28 <sup>0</sup> F	Higher than 32°F
	Days	Days	Days
9 years in 10	166	136	105
8 years in 10	174	144	112
5 years in 10	187	159	125
2 years in 10	201	175	138
1 year in 10	208	183	145

Table 4.—Acreage and Proportionate Extent of the Soils

	Map symbol		Acres	  Percent
Hamiin silt loam				
Tiogs sitt loam			-	
Teel sith loam				!
56         MysJauring silt loam, 0 to 3 percent slopes         3,361         0.4           6A         MysJauring silt loam, 0 to 3 percent slopes         282         **           8         Middlebury silt loam.         3,306         0.4           9         Pawling silt loam         5,371         0.7           10         Atkins silt loam.         5,371         0.7           11B         Ischua chamnery silt loam, 8 to 15 percent slopes         10,444         1.3           11D         Ischua chamnery silt loam, 15 to 25 percent slopes         12,687         1.5           11E         Ischua chamnery silt loam, 25 to 35 percent slopes         3,125         0.4           11E         Ischua chamnery silt loam, 35 to 50 percent slopes         3,125         0.4           11F         Ischua chamnery silt loam, 35 to 50 percent slopes         3,125         0.4           12B         Franklinville chamnery silt loam, 3 to 8 percent slopes         3,125         0.4           12B         Franklinville chamnery silt loam, 3 to 8 percent slopes         1,693         0.1           14B         Hornellaville silt loam, 3 to 8 percent slopes         1,693         0.1           14B         Hornellaville silt loam, 8 to 15 percent slopes         2,677         0.3           15C				!
6A         Wyalusing silt loam, 0 to 3 percent slopes         2,316         0.3           7A         Philo silt loam         0 to 3 percent slopes         282         *           8         Middlebury silt loam         3,306         0.4           10         Atkins silt loam         5,371         0.7           11B         Ischus channery silt loam, 3 to 8 percent slopes         10,444         1.3           11C         Ischus channery silt loam, 3 to 50 percent slopes         12,677         1.6           11E         Ischus channery silt loam, 3 to 50 percent slopes         9,849         1.2           11E         Ischus channery silt loam, 3 to 50 percent slopes         9,849         1.2           11E         Ischus channery silt loam, 3 to 50 percent slopes         9,849         1.2           12C         Franklinville channery silt loam, 3 to 15 percent slopes         7,711         4           12C         Franklinville channery silt loam, 25 to 35 percent slopes         1,048         0.1           12E         Franklinville channery silt loam, 3 to 8 percent slopes         1,049         0.1           14B         Hornelleville silt loam, 3 to 8 percent slopes         1,099         0.1           14B         Hornelleville silt loam, 3 to 8 percent slopes         2,677         0.3			-	!
7A         Philo silt loam, 0 to 3 percent slopes         228         **           9         Pawling silt loam         5,31         0.4           10         Atkins silt loam         5,71         0.7           11B         Jachus channery silt loam, 8 to 15 percent slopes         10,44         1.3           11D         Jachus channery silt loam, 8 to 15 percent slopes         12,687         1.5           11D         Jachus channery silt loam, 25 to 15 percent slopes         9,849         1.2           11F         Jachus channery silt loam, 3 to 8 percent slopes         3,125         0.4           11F         Jachus channery silt loam, 3 to 8 percent slopes         3,125         0.4           11F         Jachus channery silt loam, 3 to 8 percent slopes         3,125         0.4           11D         Jachus channery silt loam, 3 to 8 percent slopes         1,049         0.1           12B         Franklinville channery silt loam, 3 to 8 percent slopes         1,090         0.1           14C         Hornellaville silt loam, 3 to 8 percent slopes         1,090         0.1           14C         Hornellaville silt loam, 3 to 15 percent slopes         2,677         0.3           15C         Willdin channery silt loam, 8 to 15 percent slopes         2,677         0.3			-	!
8         Middlebury silt loam         3,306         0.4           9         Pavling silt loam         5,371         0.7           10         Atkins silt loam         5,371         0.7           11B         Ischua channery silt loam, 3 to 8 percent slopes         10,444         1.3           11D         Ischua channery silt loam, 15 to 25 percent slopes         12,675         1.6           11E         Ischua channery silt loam, 25 to 35 percent slopes         9,849         1.2           11F         Ischua channery silt loam, 3 to 8 percent slopes         9,849         1.2           12B         Franklinville channery silt loam, 3 to 8 percent slopes         3125         0.4           12B         Franklinville channery silt loam, 5 to 15 percent slopes         771         *           12D         Franklinville channery silt loam, 5 to 25 percent slopes         1,231         0.1           14B         Hornellsville silt loam, 3 to 8 percent slopes         1,009         0.1           14B         Hornellsville silt loam, 3 to 15 percent slopes         2,777         0.3           15B         Willdin channery silt loam, 8 to 15 percent slopes         3,00         0.4           16B         Hornellsville silt loam, 8 to 15 percent slopes         3,00         0.4 <td< td=""><td></td><td>  Myalusing silt loam, 0 to 3 percent slopes</td><td></td><td></td></td<>		Myalusing silt loam, 0 to 3 percent slopes		
Pawling sith loam				!
Atkins   silt   loam   50			-	!
110	10		538	*
110	11B	Ischua channery silt loam, 3 to 8 percent slopes	10,444	1.3
Izehua channery sitt loam, 35 to 50 percent slopes   9,849   1.2	11C	Ischua channery silt loam, 8 to 15 percent slopes	12,687	1.5
128	11D		12,875	1.6
Pranklinville channery sitt loam, 3 to 8 percent slopes	11E		9,849	1.2
Pranklinville channery silt loam, 8 to 15 percent slopes	11F		-	
Franklinville channery silt loam, 25 to 35 percent slopes				1
Franklinville channery silt loam, 25 to 35 percent slopes   1,231   0.1				!
Hornellswille silt loam, 8 to 15 percent slopes   1,009   0.1			-	!
Hornellsville sitt loam, 8 to 15 percent slopes				!
15B   Willdin channery silt loam, 8 to 15 percent slopes   3,075   0.4			-	!
15D   Willdim channery silt loam, 8 to 15 percent slopes				!
Mildin channery silt loam, 15 to 25 percent slopes   1,661				
16B       Almond silt loam, 0 to 3 percent slopes       1,661       0.2         16B       Almond silt loam, 3 to 8 percent slopes       6,529       0.8         16C       Almond silt loam, 8 to 15 percent slopes       1,518       0.2         17B       Salamanca silt loam, 3 to 8 percent slopes       2,234       0.3         17C       Salamanca silt loam, 8 to 15 percent slopes       4,333       0.5         17D       Salamanca silt loam, 15 to 25 percent slopes       5,319       0.6         17E       Salamanca silt loam, 25 to 35 percent slopes       293       *         19A       Olean silt loam, 0 to 3 percent slopes       293       *         19B       Olean silt loam, 0 to 3 percent slopes       687       *         20B       Unadilla silt loam, 0 to 3 percent slopes       687       *         20B       Unadilla silt loam, 3 to 8 percent slopes       257       *         20C       Unadilla silt loam, 5 to 25 percent slopes       221       *         22A       Allard silt loam, 15 to 25 percent slopes       233       *         22A       Allard silt loam, 0 to 3 percent slopes       297       0.4         22B       Unadilla silt loam, 3 to 8 percent slopes       2987       0.4         22B       Allar				
16B       Almond silt loam, 3 to 8 percent slopes       6,529       0.8         16C       Almond silt loam, 3 to 8 percent slopes       1,518       0.2         17B       Salamanca silt loam, 3 to 8 percent slopes       2,234       0.3         17C       Salamanca silt loam, 8 to 15 percent slopes       4,333       0.5         17D       Salamanca silt loam, 15 to 25 percent slopes       5,319       0.6         17E       Salamanca silt loam, 0 to 3 percent slopes       4,038       0.5         18A       Pope fine sandy loam, 0 to 3 percent slopes       293       *         19B       Olean silt loam, 0 to 3 percent slopes       293       *         19B       Olean silt loam, 3 to 8 percent slopes       687       *         20A       Unadilla silt loam, 3 to 8 percent slopes       257       *         20C       Unadilla silt loam, 8 to 15 percent slopes       257       *         20C       Unadilla silt loam, 8 to 15 percent slopes       233       *         21D       Unadilla silt loam, 3 to 8 percent slopes       233       *         22D       Unadilla silt loam, 3 to 8 percent slopes       221       *         22D       Unadilla silt loam, 3 to 8 percent slopes       221       *         22A       Allard				!
16C       Almond silt loam, 8 to 15 percent slopes       1,518       0.2         17B       Salamanca silt loam, 3 to 8 percent slopes       2,234       0.3         17C       Salamanca silt loam, 8 to 15 percent slopes       4,333       0.5         17D       Salamanca silt loam, 15 to 25 percent slopes       5,319       0.6         17E       Salamanca silt loam, 25 to 35 percent slopes       4,038       0.5         18A       Pope fine sandy loam, 0 to 3 percent slopes       293       *         19A       Olean silt loam, 0 to 3 percent slopes       293       *         20A       Unadilla silt loam, 0 to 3 percent slopes       813       *         20B       Unadilla silt loam, 3 to 8 percent slopes       221       *         20D       Unadilla silt loam, 15 to 25 percent slopes       221       *         20D       Unadilla silt loam, 3 to 8 percent slopes       221       *         21D       Unadilla silt loam, 3 to 8 percent slopes       221       *         22D       Unadilla silt loam, 3 to 8 percent slopes       2987       0.4         22B       Allard silt loam, 3 to 8 percent slopes       2987       0.4         22B       Chenango gravelly silt loam, 3 to 8 percent slopes       7,955       1.0         25D<			-	!
Salamanca silt loam, 8 to 15 percent slopes		Almond silt loam, 8 to 15 percent slopes		!
Salamanca silt loam, 8 to 15 percent slopes	17B	Salamanca silt loam, 3 to 8 percent slopes		0.3
Salamanca silt loam, 15 to 25 percent slopes	17C	Salamanca silt loam, 8 to 15 percent slopes	4,333	0.5
Pope fine sandy loam, 0 to 3 percent slopes	17D	Salamanca silt loam, 15 to 25 percent slopes	5,319	0.6
Olean silt loam, 0 to 3 percent slopes	17E	Salamanca silt loam, 25 to 35 percent slopes	4,038	0.5
Olean silt loam, 3 to 8 percent slopes	18A	Pope fine sandy loam, 0 to 3 percent slopes	293	!
20A         Unadilla silt loam, 3 to 8 percent slopes			-	!
Unadilla silt loam, 8 to 15 percent slopes		Olean silt loam, 3 to 8 percent slopes		1
20C       Unadilla silt loam, 8 to 15 percent slopes		Unadilla silt loam, U to 3 percent slopes		1
20D       Unadilla silt loam, 0 to 3 percent slopes       233       *         22A       Allard silt loam, 0 to 3 percent slopes       2,987       0.4         22B       Allard silt loam, 3 to 8 percent slopes       827       0.1         25A       Chenango gravelly silt loam, 0 to 3 percent slopes       7,955       1.0         25B       Chenango gravelly silt loam, 3 to 8 percent slopes       7,355       0.9         25C       Chenango gravelly silt loam, 8 to 15 percent slopes       669       *         25D       Chenango gravelly silt loam, 25 to 35 percent slopes       725       *         25E       Chenango gravelly silt loam, 25 to 35 percent slopes       725       *         25F       Chenango gravelly silt loam, 3 to 0 percent slopes       725       *         26A       Chenango channery silt loam, fan, 0 to 3 percent slopes       4,704       0.6         26B       Chenango channery silt loam, fan, 3 to 8 percent slopes       8,775       1.1         27B       Castile gravelly silt loam, 0 to 3 percent slopes       5,094       0.6         27B       Castile gravelly sandy loam, 0 to 3 percent slopes       1,353       0.2         29A       Chenango fine gravelly sandy loam, 3 to 8 percent slopes       2,211       0.3         29B       Chenango fine		Unadilla sit loam, 3 to 8 percent slopes		1
22A       Allard silt loam, 3 to 8 percent slopes       2,987       0.4         22B       Allard silt loam, 3 to 8 percent slopes       827       0.1         25A       Chenango gravelly silt loam, 0 to 3 percent slopes       7,955       1.0         25B       Chenango gravelly silt loam, 3 to 8 percent slopes       7,355       0.9         25C       Chenango gravelly silt loam, 8 to 15 percent slopes       1,974       0.2         25D       Chenango gravelly silt loam, 15 to 25 percent slopes       669       *         25E       Chenango gravelly silt loam, 25 to 35 percent slopes       725       *         25F       Chenango gravelly silt loam, 55 to 50 percent slopes       333       *         26A       Chenango channery silt loam, fan, 0 to 3 percent slopes       4,704       0.6         26B       Chenango channery silt loam, fan, 3 to 8 percent slopes       8,775       1.1         27A       Castile gravelly silt loam, 0 to 3 percent slopes       5,094       0.6         27B       Castile gravelly silt loam, 3 to 8 percent slopes       1,353       0.2         28A       Scio silt loam, 0 to 3 percent slopes       1,500       0.2         29A       Chenango fine gravelly sandy loam, 8 to 8 percent slopes       2,211       0.3         29C       Chenango		Unadilla silt loam, o to 15 percent stopes		I
Allard silt loam, 3 to 8 percent slopes		Dallard silt loam 0 to 3 percent slopes		!
Chenango gravelly silt loam, 0 to 3 percent slopes				!
Chenango gravelly silt loam, 3 to 8 percent slopes				!
25C   Chenango gravelly silt loam, 8 to 15 percent slopes	25B	Chenango gravelly silt loam, 3 to 8 percent slopes	-	0.9
25D   Chenango gravelly silt loam, 15 to 25 percent slopes	25C	Chenango gravelly silt loam, 8 to 15 percent slopes	1,974	0.2
Chenango gravelly silt loam, 35 to 50 percent slopes   333   *	25D	Chenango gravelly silt loam, 15 to 25 percent slopes	669	*
26A       Chenango channery silt loam, fan, 0 to 3 percent slopes	25E	Chenango gravelly silt loam, 25 to 35 percent slopes	725	*
Chenango channery silt loam, fan, 3 to 8 percent slopes				1
27A       Castile gravelly silt loam, 0 to 3 percent slopes				:
Castile gravelly silt loam, 3 to 8 percent slopes				!
28A       Scio silt loam, 0 to 3 percent slopes				!
Chenango fine gravelly sandy loam, 0 to 3 percent slopes				:
Chenango fine gravelly sandy loam, 3 to 8 percent slopes				•
29C   Chenango fine gravelly sandy loam, 8 to 15 percent slopes		Chemango fine gravelly sandy loam, U to 3 percent slopes		!
29D   Chenango fine gravelly sandy loam, 15 to 25 percent slopes				!
29E       Chenango fine gravelly sandy loam, 25 to 35 percent slopes				1
31B       Collamer silt loam, 3 to 8 percent slopes				1
31C   Collamer silt loam, 8 to 15 percent slopes				1
32A   Churchville silt loam, 0 to 3 percent slopes				0.2
32B   Churchville silt loam, 3 to 8 percent slopes 1,178   0.1 33A   Wallington silt loam, 0 to 3 percent slopes 988   0.1		Churchville silt loam, 0 to 3 percent slopes		!
33A   Wallington silt loam, 0 to 3 percent slopes 988   0.1		Churchville silt loam, 3 to 8 percent slopes		0.1
34   Getzville silt loam 2,863   0.3	33A	Wallington silt loam, 0 to 3 percent slopes	988	0.1
	34	Getzville silt loam	2,863	0.3

<sup>\*</sup> See footnote at end of table.

Table 4.—Acreage and Proportionate Extent of the Soils-Continued

Map symbol		Acres	  Percent
35A	Rhinebeck silt loam, 0 to 3 percent slopes	1,982	0.2
35B	Rhinebeck silt loam, 3 to 8 percent slopes	6,062	0.7
35C	Rhinebeck silt loam, 8 to 15 percent slopes	902	0.1
36	Canadice silty clay loam	2,072	0.3
37A	Tonawanda silt loam, 0 to 3 percent slopes	2,919	0.4
37B	Tonawanda silt loam, 3 to 8 percent slopes	465	*
38A	Niagara silt loam, 0 to 3 percent slopes	2,990	0.4
38B	Niagara silt loam, 3 to 8 percent slopes	2,326	0.3
39A	Halsey silt loam, 0 to 3 percent slopes	811	*
40A	Williamson silt loam, 0 to 3 percent slopes	179	*
40B	Williamson silt loam, 3 to 8 percent slopes	215	*
40C	Williamson silt loam, 8 to 15 percent slopes	261	*
41A	Barcelona silt loam, 0 to 3 percent slopes	585	*
41B	Barcelona silt loam, 3 to 8 percent slopes	206	*
42A	Elnora fine sandy loam, 0 to 3 percent slopes	339	*
42B	Elnora fine sandy loam, 3 to 8 percent slopes	279	*
43	Canandaigua silt loam	5,094	0.6
44	Canandaigua mucky silt loam	4,168	0.5
45	Canandaigua silt loam, acid substratum	641	<b>*</b>
46	Swormville silt loam	4,612	0.6
47A	Minoa very fine sandy loam, 0 to 3 percent slopes	1,305	0.2
48A	Colonie fine sandy loam, 0 to 3 percent slopes	101	<b>*</b>
48B	Colonie fine sandy loam, 3 to 8 percent slopes	617	*
48C	Colonie fine sandy loam, 8 to 15 percent slopes	126	*
49A	Red Hook silt loam, 0 to 3 percent slopes	3,204	0.4
50A	Canaseraga silt loam, 0 to 3 percent slopes	416	*
50B	Canaseraga silt loam, 3 to 8 percent slopes	2,029	0.2
50C	Canaseraga silt loam, 8 to 15 percent slopes	1,169	0.1
51B	Chadakoin channery silt loam, 3 to 8 percent slopes	658	<b>*</b>
51C	Chadakoin channery silt loam, 8 to 15 percent slopes	1,860	0.2
51D	Chadakoin channery silt loam, 15 to 25 percent slopes	2,696	0.3
51E	Chadakoin channery silt loam, 25 to 35 percent slopes	7,235	0.9
51F	Chadakoin channery silt loam, 35 to 50 percent slopes	2,548	0.3
52B	Valois gravelly silt loam, 3 to 8 percent slopes	10,775	1.3
52C	Valois gravelly silt loam, 8 to 15 percent slopes	8,693	1.1
52D	Valois gravelly silt loam, 15 to 25 percent slopes	3,247	0.4
52E	Valois gravelly silt loam, 25 to 35 percent slopes	1,766	0.2
52F	Valois gravelly silt loam, 35 to 50 percent slopes	841	0.1
53C	Valois-Volusia-Mardin complex, 3 to 15 percent slopes	17,162	2.1
55A	Darien silt loam, 0 to 3 percent slopes	122	*
55B	Darien silt loam, 3 to 8 percent slopes	1,166	0.1
55C	Darien silt loam, 8 to 15 percent slopes	367	*
56B	Chautauqua silt loam, 3 to 8 percent slopes	7,268	0.9
56C	Chautauqua silt loam, 8 to 15 percent slopes	3,970	0.5
56D	Chautauqua silt loam, 15 to 25 percent slopes	1,024	0.1
57A	Busti silt loam, 0 to 3 percent slopes	2,047	0.2
57B	Busti silt loam, 3 to 8 percent slopes	7,405	0.9
57C	Busti silt loam, 8 to 15 percent slopes	472	*
58B	Rushford channery silt loam, 3 to 8 percent slopes	1,271	0.2
58C	Rushford channery silt loam, 8 to 15 percent slopes	1,597	0.2
59B	Yorkshire channery silt loam, 3 to 8 percent slopes	6,347	0.8
59C	Yorkshire channery silt loam, 8 to 15 percent slopes	17,751	2.2
59D	Yorkshire channery silt loam, 15 to 25 percent slopes	12,959	1.6
60A	Napoli silt loam, 0 to 3 percent slopes	2,530	0.3
60B	Napoli silt loam, 3 to 8 percent slopes	18,616	2.3
60C	Napoli silt loam, 8 to 15 percent slopes	19,406	2.4
60D	Napoli silt loam, 15 to 25 percent slopes	241	*
61B	Schuyler silt loam, 3 to 8 percent slopes	1,052	0.1
61C	Schuyler silt loam, 8 to 15 percent slopes	4,150	0.5
61D	Schuyler silt loam, 15 to 25 percent slopes	7,606	0.9
61E	Schuyler silt loam, 25 to 35 percent slopes	7,534	0.9
61F	Schuyler silt loam, 35 to 50 percent slopes	1,655	0.2
62B	Mardin channery silt loam, 3 to 8 percent slopes	9,089	1.1

<sup>\*</sup> See footnote at end of table.

Table 4.—Acreage and Proportionate Extent of the Soils—Continued

Map symbol	   Soil name	Acres	  Percent
62C	Mardin channery silt loam, 8 to 15 percent slopes	20,476	2.5
62D 63B	Mardin channery silt loam, 15 to 25 percent slopes  Langford channery silt loam, 3 to 8 percent slopes	18,124 2,318	0.3
63C	Langford channery silt loam, 8 to 15 percent slopes	5,339	0.3
63D	Langford channery silt loam, 15 to 25 percent slopes	2,267	0.3
64C	Mardin channery silt loam, 8 to 15 percent slopes, very stony	221	*
66B	Volusia channery silt loam, 3 to 8 percent slopes, very stony	268	*
67A	Dalton silt loam, 0 to 3 percent slopes	980	0.1
67B	Dalton silt loam, 3 to 8 percent slopes	3,203	0.4
68A	Volusia channery silt loam, 0 to 3 percent slopes	2,926	0.4
68B	Volusia channery silt loam, 3 to 8 percent slopes	24,644	3.0
68C	Volusia channery silt loam, 8 to 15 percent slopes	24,578	3.0
69A	Erie channery silt loam, 0 to 3 percent slopes	938	0.1
69B	Erie channery silt loam, 3 to 8 percent slopes	7,404	0.9
69C	Erie channery silt loam, 8 to 15 percent slopes	2,409	0.3
71E	Mongaup channery silt loam, 25 to 35 percent slopes, very stony	883	0.1
71F	Mongaup channery silt loam, 35 to 70 percent slopes, very stony	1,360	0.2
72B 72C	Towerville silt loam, 3 to 8 percent slopes	1,746	0.2
72C 72D	Towerville silt loam, 8 to 15 percent slopes    Towerville silt loam, 15 to 25 percent slopes	2,632 3,296	0.3
72D 72E	Towerville silt loam, 25 to 35 percent slopes	5,582	0.4
72E	Towerville silt loam, 35 to 50 percent slopes	3,242	0.4
73B	Gretor channery silt loam, 3 to 8 percent slopes	1,573	0.2
73C	Gretor channery silt loam, 8 to 15 percent slopes	1,030	0.1
74	Ashville silt loam	1,457	0.2
75	Alden mucky silt loam	457	*
76A	Orpark silt loam, 0 to 3 percent slopes	395	*
76B	Orpark silt loam, 3 to 8 percent slopes	1,070	0.1
76C	Orpark silt loam, 8 to 15 percent slopes	402	*
77A	Chippewa silt loam, 0 to 3 percent slopes	584	*
78A	Hornell silt loam, 0 to 3 percent slopes	1,194	0.1
78B	Hornell silt loam, 3 to 8 percent slopes	1,311	0.2
78C	Hornell silt loam, 8 to 15 percent slopes	633	*
78D	Hornell silt loam, 15 to 25 percent slopes	501	*
78F 79B	Hornell and Hudson soils, 35 to 50 percent slopes    Mongaup channery silt loam, 3 to 8 percent slopes	494	0.2
79B 79C	Mongaup channery silt loam, 8 to 15 percent slopes	1,602 2,276	0.2
79D	Mongaup channery silt loam, 15 to 25 percent slopes	1,843	0.3
79E	Mongaup channery silt loam, 25 to 35 percent slopes	1,004	0.1
79F	Mongaup channery silt loam, 35 to 70 percent slopes	1,052	0.1
80A	Fremont silt loam, 0 to 3 percent slopes	2,316	0.3
80B	Fremont silt loam, 3 to 8 percent slopes	6,523	0.8
80C	Fremont silt loam, 8 to 15 percent slopes	2,665	0.3
81B	Varysburg gravelly silt loam, 3 to 8 percent slopes	2,088	0.3
81C	Varysburg gravelly silt loam, 8 to 15 percent slopes	798	*
81D	Varysburg gravelly silt loam, 15 to 25 percent slopes	1,463	0.2
81E	Varysburg gravelly silt loam, 25 to 35 percent slopes	653	*
82F	Rock outcrop-Manlius complex, 35 to 70 percent slopes	616	*
84B	Elko silt loam, 3 to 8 percent slopes	802	*
84C	Elko silt loam, 8 to 15 percent slopes	321	*
85B	Onoville silt loam, 3 to 8 percent slopes	812	*
85C 85D	Onoville silt loam, 8 to 15 percent slopes	3,605	0.4
86B	Eldred silt loam, 3 to 8 percent slopes	7,783 1,606	0.9
86C	Eldred silt loam, 8 to 15 percent slopes	1,720	0.2
86D	Eldred silt loam, 15 to 25 percent slopes	1,805	0.2
87B	Shongo silt loam, 3 to 8 percent slopes	2,325	0.3
87C	Shongo silt loam, 8 to 15 percent slopes	4,331	0.5
88A	Ivory silt loam, 0 to 3 percent slopes	174	*
88B	Ivory silt loam, 3 to 8 percent slopes	1,057	0.1
88C	Ivory silt loam, 8 to 15 percent slopes	205	*
88D	Ivory silt loam, 15 to 25 percent slopes	8	*
89B	Portville silty clay loam, 3 to 8 percent slopes	4,115	0.5

<sup>\*</sup> See footnote at end of table.

Table 4.—Acreage and Proportionate Extent of the Soils-Continued

Map symbol		Acres	  Percent
89C	Portville silty clay loam, 8 to 15 percent slopes	9,969	1.2
90A	Brinkerton silt loam, 0 to 3 percent slopes	309	*
90B	Brinkerton silt loam, 3 to 8 percent slopes	79	*
91A	Palms muck, 0 to 2 percent slopes	2,544	0.3
92	Carlisle muck	914	0.1
93	Saprists, inundated	1,470	0.2
94B	Frewsburg silt loam, 3 to 8 percent slopes	981	0.1
94C	Frewsburg silt loam, 8 to 15 percent slopes	227	*
95B	Mandy channery silt loam, 3 to 8 percent slopes	3,281	0.4
95C	Mandy channery silt loam, 8 to 15 percent slopes	3,260	0.4
95D	Mandy channery silt loam, 15 to 25 percent slopes	2,177	0.3
95E	Mandy channery silt loam, 25 to 35 percent slopes	3,104	0.4
95F 96B	Mandy channery silt loam, 35 to 50 percent slopes	3,985 4,447	0.5
96C	Carrollton channery silt loam, 8 to 15 percent slopes	5,231	0.5
96D	Carrollton channery silt loam, 15 to 25 percent slopes	5,626	0.7
96E	Carrollton channery silt loam, 25 50 35 percent slopes	10,562	1.3
96F	Carrollton channery silt loam, 35 to 50 percent slopes	4,337	0.5
97B	Kinzua channery silt loam, 3 to 8 percent slopes	435	*
97C	Kinzua channery silt loam, 8 to 15 percent slopes	1,966	0.2
97D	Kinzua channery silt loam, 15 to 25 percent slopes	4,417	0.5
97E	Kinzua channery silt loam, 25 to 35 percent slopes	15,549	1.9
97F	Kinzua channery silt loam, 35 to 60 percent slopes	1,049	0.1
98D	Kinzua channery silt loam, 15 to 25 percent slopes, extremely bouldery	970	0.1
98E	Kinzua channery silt loam, 25 to 35 percent slopes, extremely bouldery	3,132	0.4
99B	Buchanan silt loam, 3 to 8 percent slopes	345	*
99C	Buchanan silt loam, 8 to 15 percent slopes	4,310	0.5
99D	Buchanan silt loam, 15 to 25 percent slopes	11,118	1.4
100	Udorthents, loamy-skeletal	680	*
101	Udorthents, refuse substratum	166	*
102C	Mandy-Rock outcrop complex, 3 to 15 percent slopes	515	*
103C	Knapp Creek-Rock outcrop complex, 3 to 15 percent slopes	728	*
104B 104C	Flatiron loamy fine sand, 3 to 8 percent slopes, extremely bouldery Flatiron loamy fine sand, 8 to 15 percent slopes, extremely bouldery	400 418	,
104C	Flatiron loamy fine sand, 15 to 25 percent slopes, extremely bouldery	282	*
104E	Flatiron loamy fine sand, 25 to 35 percent slopes, extremely bouldery	764	*
108D	Hartleton channery silt loam, 15 to 25 percent slopes	54	*
108E	Hartleton channery silt loam, 25 to 35 percent slopes	467	*
108F	Hartleton channery silt loam, 35 to 50 percent slopes	48	*
131	Lamson very fine sandy loam	1,488	0.2
132B	Wiscoy channery silt loam, 3 to 8 percent slopes	801	*
132C	Wiscoy channery silt loam, 8 to 15 percent slopes	729	*
135C	Hudson silt loam, 8 to 15 percent slopes	794	*
135D	Hudson silt loam, 15 to 25 percent slopes	2,848	0.3
135E	Hudson silt loam, 25 to 35 percent slope	4,809	0.6
140D	Dunkirk silt loam, 15 to 25 percent slopes	1,067	0.1
140E	Dunkirk silt loam, 25 to 35 percent slopes	1,196	0.1
185C	Onoville silt loam, 8 to 15 percent slopes, extremely bouldery	3,550	0.4
185D	Onoville silt loam, 15 to 25 percent slopes, extremely bouldery	4,567	0.6
187B 187C	Shongo silt loam, 3 to 8 percent slopes, extremely bouldery    Shongo silt loam, 8 to 15 percent slopes, extremely bouldery	2,078 3,002	0.3
188B	Cavode silt loam, 3 to 8 percent slopes, extremely boundery	50	*
188C	Cavode silt loam, 8 to 15 percent slopes	89	*
188D	Cavode silt loam, 15 to 25 percent slopes	252	*
189B	Portville silty clay loam, 3 to 8 percent slopes, extremely bouldery	1,901	0.2
189C	Portville silty clay loam, 8 to 15 percent slopes, extremely bouldery	3,741	0.5
195C	Mandy channery silt loam, 3 to 15 percent slopes, extremely bouldery	1,568	0.2
195D	Mandy channery silt loam, 15 to 25 percent slopes, extremely bouldery	1,016	0.1
195E	Mandy channery silt loam, 25 to 50 percent slopes, extremely bouldery	388	*
199C	Buchanan silt loam, 8 to 15 percent slopes, extremely bouldery	3,185	0.4
199D	Buchanan silt loam, 15 to 25 percent slopes, extremely bouldery	3,403	0.4
289B	Ceres channery silt loam, 3 to 8 percent slopes	180	*
289C	Ceres channery silt loam, 8 to 15 percent slopes	206	*

<sup>\*</sup> See footnote at end of table.

Table 4.—Acreage and Proportionate Extent of the Soils-Continued

Map symbol	Soil name	Acres	Percent
289D		350	*
289E	Ceres channery silt loam, 25 to 35 percent slopes	494	*
289F	Ceres channery silt loam, 35 to 50 percent slopes	386	*
400	Wakeville silt loam	3,661	0.4
496B	Gilpin channery silt loam, 3 to 8 percent slopes	145	*
496C	Gilpin channery silt loam, 8 to 15 percent slopes	496	<b>*</b>
496D	Gilpin channery silt loam, 15 to 25 percent slopes	1,469	0.2
496E	Gilpin channery silt loam, 25 to 35 percent slopes	4,562	0.6
496F	Gilpin channery silt loam, 35 to 50 percent slopes	2,747	0.3
497D	Rayne channery silt loam, 15 to 25 percent slopes	2,762	0.3
497E	Rayne channery silt loam, 25 to 35 percent slopes	14,371	1.7
497F	Rayne channery silt loam, 35 to 50 percent slopes	1,113	0.1
498E	Rayne channery silt loam, 25 to 35 percent slopes, extremely bouldery	750	<b>*</b>
800	Holderton silt loam	4,648	0.6
PG	Pits, gravel	1,596	0.2
Ur	Urban land	369	<b>*</b>
W	Water	14,898	1.8
	Total	822,000	100.0

<sup>\*</sup> Less than 0.1 percent.

## Table 5.-Prime Farmland

(Only the soils considered prime farmland are listed. Urban or built-up areas of the soils listed are not considered prime farmland. If a soil is prime farmland only under certain conditions, the conditions are specified in parentheses after the soil name.)

Map symbol	Soil name
2 2	  Hamlin silt loam
3	Tioga silt loam
, <u>I</u>	Teel silt loam
7.A.	Philo silt loam, 0 to 3 percent slopes
3	Middlebury silt loam
)	Pawling silt loam
L1B	Ischua channery silt loam, 3 to 8 percent slopes
2B	Franklinville channery silt loam, 3 to 8 percent slopes
L6A	Almond silt loam, 0 to 3 percent slopes (Prime farmland if drained)
L7B	Salamanca silt loam, 3 to 8 percent slopes
L8A	Pope fine sandy loam, 0 to 3 percent slopes
L9A	Olean silt loam, 0 to 3 percent slopes
19B	Olean silt loam, 3 to 8 percent slopes
20A	Unadilla silt loam, 0 to 3 percent slopes
20B	Unadilla silt loam, 3 to 8 percent slopes
22A	Allard silt loam, 0 to 3 percent slopes
22B	Allard silt loam, 3 to 8 percent slopes
25A	Chenango gravelly silt loam, 0 to 3 percent slopes
25B	Chenango gravelly silt loam, 3 to 8 percent slopes
26A	Chenango channery silt loam, fan, 0 to 3 percent slopes
26B	Chenango channery silt loam, fan, 3 to 8 percent slopes
27A	Castile gravelly silt loam, 0 to 3 percent slopes
27B	Castile gravelly silt loam, 3 to 8 percent slopes
28A	Scio silt loam, 0 to 3 percent slopes
29A	Chenango fine gravelly sandy loam, 0 to 3 percent slopes
29B	Chenango fine gravelly sandy loam, 3 to 8 percent slopes
31B	Collamer silt loam, 3 to 8 percent slopes
32A	Churchville silt loam, 0 to 3 percent slopes (Prime farmland if drained)
32B	Churchville silt loam, 3 to 8 percent slopes (Prime farmland if drained)
33A	Wallington silt loam, 0 to 3 percent slopes (Prime farmland if drained)
35A	Rhinebeck silt loam, 0 to 3 percent slopes (Prime farmland if drained)
35B	Rhinebeck silt loam, 3 to 8 percent slopes (Prime farmland if drained)
37A	Tonawanda silt loam, 0 to 3 percent slopes (Prime farmland if drained)
37B	Tonawanda silt loam, 3 to 8 percent slopes (Prime farmland if drained)
38A	Niagara silt loam, 0 to 3 percent slopes (Prime farmland if drained)
38B	Niagara silt loam, 3 to 8 percent slopes (Prime farmland if drained)
40A	Williamson silt loam, 0 to 3 percent slopes
10B	Williamson silt loam, 3 to 8 percent slopes
l1A	Barcelona silt loam, 0 to 3 percent slopes (Prime farmland if drained)
11B	Barcelona silt loam, 3 to 8 percent slopes (Prime farmland if drained)
12A	Elnora fine sandy loam, 0 to 3 percent slopes
12B	Elnora fine sandy loam, 3 to 8 percent slopes
16	Swormville silt loam (Prime farmland if drained)
17A	Minoa very fine sandy loam, 0 to 3 percent slopes (Prime farmland if drained)
8A	Colonie fine sandy loam, 0 to 3 percent slopes
8B	Colonie fine sandy loam, 3 to 8 percent slopes
19A	Red Hook silt loam, 0 to 3 percent slopes (Prime farmland if drained)
50A	Canaseraga silt loam, 0 to 3 percent slopes
1B	Chadakoin channery silt loam, 3 to 8 percent slopes
2B	Valois gravelly silt loam, 3 to 8 percent slopes
5A	Darien silt loam, 0 to 3 percent slopes (Prime farmland if drained)
55B	Darien silt loam, 3 to 8 percent slopes (Prime farmland if drained)
6B	Chautauqua silt loam, 3 to 8 percent slopes
57A	Busti silt loam, 0 to 3 percent slopes (Prime farmland if drained)
57B	Busti silt loam, 3 to 8 percent slopes (Prime farmland if drained)
51B	Schuyler silt loam, 3 to 8 percent slopes
72B	Towerville silt loam, 3 to 8 percent slopes
73B	Gretor channery silt loam, 3 to 8 percent slopes (Prime farmland if drained)  Orpark silt loam, 0 to 3 percent slopes (Prime farmland if drained)
76A	

Table 5.-Prime Farmland-Continued

Map symbol	Soil name
78A	  Hornell silt loam, 0 to 3 percent slopes (Prime farmland if drained)
79B	Mongaup channery silt loam, 3 to 8 percent slopes
80A	Fremont silt loam, 0 to 3 percent slopes (Prime farmland if drained)
81B	Varysburg gravelly silt loam, 3 to 8 percent slopes
88A	Ivory silt loam, 0 to 3 percent slopes (Prime farmland if drained)
94B	Frewsburg silt loam, 3 to 8 percent slopes (Prime farmland if drained)
96B	Carrollton channery silt loam, 3 to 8 percent slopes
97B	Kinzua channery silt loam, 3 to 8 percent slopes
289B	Ceres channery silt loam, 3 to 8 percent slopes
400	Wakeville silt loam (Prime farmland if drained)
496B	Gilpin channery silt loam, 3 to 8 percent slopes
800	Holderton silt loam (Prime farmland if drained)

Table 6.—Land Capability and Yields per Acre of Crops and Pasture

(Yields are those that can be expected under a high level of management. They are for nonirrigated areas. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil.)

Map symbol and soil name	Land capa- bility	  Alfalfa hay    	Corn	Corn silage	Grass hay	Grass-  legume hay	Oats	Pasture
_		Tons	Bu	Tons	Tons	Tons	Bu	AUM
1:   Udifluvents	5w							2.00
Fluvaquents	5w						 	2.00
2:       	1	6.00	120.00	24.00	4.00	5.00	90.00	8.50
3:     Tioga	1	6.00	120.00	24.00	4.00	5.00	90.00	8.50
4:   Teel	2w	5.00	115.00	23.00	4.00	     4.50	     80.00	7.50
5:      Wayland	5w							3.00
6A:     Wyalusing	5w	   						2.50
7A:     Philo	2w	5.00	115.00	23.00	4.00	     4.50	     80.00	     7.50
8:   Middlebury	2w	5.00	115.00	23.00	4.00	     4.50	     80.00	     7.50
9:     Pawling	2w	5.00	115.00	23.00	4.00	     4.50	80.00	7.50
10:   Atkins	5w	   				   	   	2.50
11B:       Ischua	2e	3.50	80.00	16.00	3.00	3.50	65.00	7.00
11C:     Ischua	3e	3.50	75.00	16.00	3.00	3.50	60.00	7.00
11D:     Ischua	4e	3.00	65.00	15.00	2.50	3.00	50.00	5.50
11E:     Ischua	6e						   	5.00
11F:   Ischua	7e						   	
12B:     Franklinville	2e	4.50	85.00	16.00	3.00	3.50	     65.00	7.00
12C:     Franklinville	3e	4.00	80.00	16.00	3.00	3.50	     60.00	7.00
12D:     Franklinville	4e	3.00	75.00	15.00	2.50	3.00	     50.00	6.00
12E:     Franklinville	6e	   					   	5.50
   14B:   Hornellsville	3w	3.00	70.00	14.00	2.50	2.50	     60.00	5.50

Table 6.-Land Capability and Yields per Acre of Crops and Pasture-Continued

Map symbol and soil name	Land capa- bility	  Alfalfa hay  	Corn	  Corn silage 	Grass hay	   Grass-  legume hay 	   Oats 	Pasture
	·	Tons	Bu	Tons	Tons	Tons	Bu	AUM
14C: Hornellsville	3e	3.00	65.00	13.00	2.50	     3.00	     55.00	     5.50
15B: Willdin	2w	4.50	80.00	16.00	3.00	   3.50	65.00	7.00
15C: Willdin	3e	4.50	75.00	15.00	3.00	3.50	60.00	6.50
15D: Willdin	4e	3.00	70.00	14.00	2.50	3.00	     50.00	6.00
16A: Almond	3w	2.50	70.00	15.00	3.00	3.00	     60.00	5.50
16B: Almond	3w	3.00	70.00	15.00	3.00	     3.50	     60.00	5.50
16C: Almond	3e	3.00	60.00	12.00	2.50	3.00	     60.00	5.50
17B: Salamanca	2e	4.50	80.00	16.00	3.00	     3.50	     60.00	7.50
17C: Salamanca	3e	3.50	75.00	15.00	3.00	3.50	   55.00	6.50
17D: Salamanca	4e	3.00	65.00	13.00	2.50	3.00	   50.00	6.50
17E: Salamanca	6e	 				   	   	5.50
18A: Pope	1	6.00	120.00	24.00	4.00	5.00	90.00	8.50
19A: Olean	2w	5.00	115.00	23.00	4.00	   4.50	   85.00	7.50
19B: Olean	2e	5.00	115.00	23.00	4.00	   4.50	   85.00	7.50
20A: Unadilla	1	6.00	120.00	24.00	4.00	   5.00	90.00	8.50
20B: Unadilla	2e	6.00	120.00	24.00	4.00	   5.00	90.00	8.50
20C: Unadilla	3e	4.50	100.00	20.00	3.50	   4.00	75.00	7.50
20D: Unadilla	4e	3.50	85.00	17.00	3.00	3.50	70.00	7.00
22A: Allard	1	6.00	120.00	24.00	4.00	     5.00	     90.00	8.50
22B: Allard	2e	6.00	120.00	24.00	4.00	     5.00	     90.00	8.50
25A: Chenango	2s	6.00	105.00	21.00	4.00	     5.00	   80.00 	8.50

Table 6.-Land Capability and Yields per Acre of Crops and Pasture-Continued

Map symbol and soil name	Land capa- bility	  Alfalfa hay    	Corn	Corn silage	Grass hay	   Grass-  legume hay	   Oats 	Pasture
		Tons	Bu	Tons	Tons	Tons	Bu	AUM
25B: Chenango	2s	6.00	105.00	21.00	4.00	5.00	   80.00 	8.50
25C: Chenango	3e	5.50	95.00	19.00	3.50	4.50	75.00	7.50
25D: Chenango	4e	4.00	80.00	16.00	3.00	4.00	     65.00	7.00
25E: Chenango	6e	   				   		5.50
25F: Chenango	7e	     				   	   	
26A: Chenango	2s	6.00	100.00	20.00	4.00	5.00	     80.00	8.50
26B: Chenango	2s	6.00	100.00	20.00	4.00	     5.00	     80.00	8.50
27A: Castile	2w	5.50	115.00	23.00	4.00	     4.50	     85.00	7.50
27B: Castile	2w	5.50	115.00	23.00	4.00	     4.50	     85.00	7.50
28A: Scio	2w	5.00	110.00	22.00	4.00	     4.50	     85.00	7.50
29A: Chenango	2s	5.50	100.00	20.00	4.00	     4.50	     80.00	8.50
29B: Chenango	2s	5.50	100.00	20.00	4.00	     4.50	     80.00	8.50
29C: Chenango	3e	4.50	90.00	18.00	3.00	4.00	     75.00	7.50
29D: Chenango	4e	4.00	80.00	16.00	3.00	4.00	     65.00	7.00
29E: Chenango	6e							5.50
31B: Collamer	2e	5.00	115.00	23.00	4.00	     4.50	     85.00	7.50
31C: Collamer	3e	4.50	100.00	20.00	3.50	     4.00	     75.00	7.00
32A: Churchville	3w	2.50	80.00	16.00	3.00	     3.50	     60.00	6.00
32B: Churchville	3w	3.00	85.00	17.00	3.00	     3.50	     65.00	6.00
33A: Wallington	3w	2.50	80.00	16.00	3.00	2.50	     60.00	6.50
34: Getzville	4w	   	70.00	14.00	3.00	2.50	     55.00	5.00

Table 6.-Land Capability and Yields per Acre of Crops and Pasture-Continued

Map symbol and soil name	Land capa- bility	  Alfalfa hay    	Corn	Corn silage	Grass hay	Grass-	Oats	Pasture
		Tons	Bu	Tons	Tons	Tons	Bu	AUM
35A: Rhinebeck	3w	2.50	80.00	16.00	3.00	3.50	60.00	6.00
35B: Rhinebeck	3w	3.00	85.00	17.00	3.00	3.50	65.00	6.50
35C: Rhinebeck	3e	3.00	80.00	16.00	3.00	3.50	60.00	6.00
36: Canadice	4w		65.00	13.00	3.00	2.50	50.00	5.00
37A: Tonawanda	3w	2.50	90.00	18.00	3.50	3.00	70.00	6.50
37B: Tonawanda	3w	3.00	95.00	19.00	3.50	3.50	75.00	7.00
38A: Niagara	3w	2.50	95.00	19.00	3.50	3.50	70.00	6.50
38B:   Niagara	3w	3.00	100.00	20.00	3.50	3.50	70.00	6.50
39A:   Halsey	5w	 				   		2.00
40A:   Williamson	2w	   5.00	90.00	18.00	3.50	   4.00	75.00	7.00
40B:   Williamson	2e	5.00	95.00	19.00	3.50	   4.00	80.00	7.50
40C:   Williamson	3e	4.00	85.00	     17.00	3.00	   3.50	70.00	7.00
41A:   Barcelona	3w	2.50	90.00	18.00	3.50	3.50	65.00	6.50
41B:   Barcelona	3w	3.00	85.00	   17.00	3.50	3.50	65.00	6.50
42A:   Elnora	2w	5.00	95.00	19.00	3.50	4.00	70.00	6.50
42B:   Elnora	     2w	5.00	95.00	     19.00	3.50	4.00	70.00	6.50
43:     Canandaigua	     4w		70.00	14.00	3.00	2.50	55.00	5.00
44: Canandaigua	5w	 		   		 		4.50
45: Canandaigua	4w	 	70.00	14.00	3.00	     3.50	55.00	5.00
46: Swormville	3w	3.00	95.00	19.00	3.50	     3.50	70.00	6.50
47A: Minoa	]     3w	3.00	90.00	18.00	3.50	     3.50	70.00	6.50

Table 6.—Land Capability and Yields per Acre of Crops and Pasture—Continued

Map symbol and soil name	Land capa- bility	  Alfalfa hay 	Corn	Corn silage	Grass hay	Grass-  legume hay	Oats	Pasture
		Tons	Bu	Tons	Tons	Tons	Bu	AUM
48A: Colonie	2s	5.00	95.00	19.00	4.00	4.50	80.00	7.00
48B: Colonie	2s	5.00	95.00	19.00	4.00	4.50	80.00	7.00
48C:   Colonie	3e	4.00	75.00	15.00	3.00	3.50	70.00	6.00
49A: Red Hook	3w	3.00	90.00	18.00	3.50	3.50	70.00	6.50
50A:   Canaseraga	2w	4.50	90.00	18.00	3.50	3.50	70.00	7.00
50B:   Canaseraga	2e	4.50	90.00	18.00	3.50	3.50	70.00	7.00
50C:   Canaseraga	3e	4.00	85.00	17.00	3.00	3.00	65.00	6.00
51B:   Chadakoin	2e	5.50	110.00	22.00	4.00	5.00	75.00	8.50
51C: Chadakoin	3e	4.50	95.00	19.00	3.50	   4.50	70.00	7.50
51D: Chadakoin	4e	4.00	80.00	16.00	3.00	4.00	65.00	7.00
51E:   Chadakoin	6e	   				   		5.50
51F: Chadakoin	7e	   				   		
52B:   Valois	2e	5.50	110.00	22.00	4.00	   4.50	75.00	7.50
52C:   Valois	3e	4.50	95.00	19.00	3.50	4.50	70.00	7.50
52D:   Valois	4e	4.00	80.00	16.00	3.00	4.00	65.00	7.00
52E:   Valois	6e	   				   		5.50
52F:   Valois	7e	   				   		
53C:   Valois	3e	4.50	95.00	19.00	4.00	4.50	70.00	7.50
Volusia	3e	3.00	75.00	15.00	3.50	3.00	65.00	6.00
Mardin	3e	4.50	80.00	16.00	3.50	3.50	65.00	7.00
55A:   Darien	3w	3.00	90.00	18.00	3.50	3.00	70.00	6.50
55B:   Darien	3w	3.00	95.00	19.00	3.50	     3.50	75.00	7.00

Table 6.—Land Capability and Yields per Acre of Crops and Pasture—Continued

Map symbol and soil name	Land capa- bility	  Alfalfa hay    	Corn	  Corn silage  	Grass hay	   Grass-  legume hay 	Oats	Pasture
		Tons	Bu	Tons	Tons	Tons	Bu	AUM
55C: Darien	3e	3.00	80.00	16.00	3.50	   3.50	60.00	6.50
56B: Chautauqua	2w	5.00	100.00	20.00	4.00	4.50	75.00	7.50
56C: Chautauqua	3e	4.50	90.00	18.00	3.50	4.00	65.00	7.00
56D: Chautauqua	4e	3.50	80.00	16.00	3.00	3.50	60.00	6.50
57A: Busti	3w	3.00	85.00	17.00	3.50	3.00	65.00	6.50
57B: Busti	3w	3.50	90.00	18.00	3.50	3.50	70.00	7.00
57C: Busti	3e	3.50	80.00	16.00	3.50	3.50	60.00	6.50
58B: Rushford	2w	4.50	95.00	19.00	3.50	     4.00	70.00	7.50
58C: Rushford	3e	4.00	90.00	18.00	3.00	3.50	65.00	7.00
59B: Yorkshire	2w	4.50	80.00	16.00	3.00	3.50	60.00	7.00
59C: Yorkshire	3e	4.00	75.00	15.00	3.00	3.50	65.00	7.00
59D: Yorkshire	4e	3.50	65.00	13.00	3.00	3.00	50.00	6.50
60A: Napoli	3w	3.00	70.00	14.00	3.50	2.50	55.00	6.50
60B: Napoli	3w	3.00	75.00	15.00	3.50	2.50	60.00	6.50
60C: Napoli	3e	3.00	65.00	13.00	3.00	2.50	55.00	6.00
60D: Napoli	4e	3.00	55.00	11.00	3.00	2.50	50.00	5.50
61B: Schuyler	2w	4.50	90.00	18.00	4.00	   4.50	70.00	7.50
61C: Schuyler	3e	4.00	85.00	17.00	3.50	3.50	65.00	7.00
61D: Schuyler	4e	3.50	80.00	16.00	3.00	3.50	60.00	6.50
61E: Schuyler	6e	 				   		5.50
61F: Schuyler	7e	 				   		
62B: Mardin	2w	4.50	90.00	18.00	4.00	4.50	70.00	7.50

Table 6.-Land Capability and Yields per Acre of Crops and Pasture-Continued

Map symbol and soil name	Land capa- bility	Alfalfa hay	Corn	Corn silage	Grass hay	Grass-  legume hay	Oats	Pasture
		Tons	Bu	Tons	Tons	Tons	Bu	AUM
62C:     Mardin	3e	4.00	80.00	16.00	3.50	3.50	65.00	   7.00
Haram	36	1.00	00.00	10.00	3.30	3.30	03.00	7.00
62D:   Mardin	4e	3.50	70.00	14.00	3.00	3.50	60.00	6.50
63B:     Langford	2w	5.00	95.00	19.00	4.00	   4.50	70.00	     7.50
63C:								
Langford	3e	4.50	85.00	17.00	4.00	4.50	65.00	7.50
63D: Langford	4e	4.00	80.00	16.00	3.50	4.00	65.00	6.50
64C:								
Mardin	6 <b>s</b>							5.50
66B: Volusia	6s	 				i 		5.00
67A:     Dalton	3w	3.00	75.00	15.00	3.50	3.00	65.00	     6.50
67B:     Dalton	3w	3.00	80.00	16.00	3.50	3.00	65.00	   6.50
   68A:   Volusia	3w	3.00	75.00	15.00	3.50	     3.00	65.00	     6.50
50 <b>5</b>		į į		į į		į į		
68B:   Volusia	3w	3.00	80.00	16.00	3.50	3.00	65.00	6.50
68C:	_		70.00	14.00	2 50		50.00	
Volusia	3e	2.50	70.00	14.00	3.50	3.00	60.00	6.00
69A: Erie	3w	3.00	80.00	16.00	3.50	3.00	65.00	6.50
69B:   Erie	3w	3.50	85.00	17.00	3.50	     3.50	65.00	     7.00
PII.6	3w	3.30	85.00	17.00	3.30	3.50	65.00	7.00
69C:   Erie	3e	3.00	75.00	15.00	3.50	3.00	60.00	6.50
71E:     Mongaup	7s	   						     4.50
71F:	7.0	j 				 		
Mongaup	7s					 		 
72B: Towerville	2e	4.50	85.00	17.00	4.00	4.50	70.00	7.50
72C:     Towerville	3e	4.00	80.00	16.00	3.50	3.50	65.00	     7.50
į								
72D:   Towerville	4e	3.50	75.00	15.00	3.00	3.50	60.00	   6.50
72E:     Towerville	6e	   						     5.50

Table 6.-Land Capability and Yields per Acre of Crops and Pasture-Continued

Map symbol   and soil name	Land capa- bility	Alfalfa hay	Corn	Corn silage	Grass hay	Grass-  legume hay	Oats	Pasture
		Tons	Bu	Tons	Tons	Tons	Bu	AUM
72F:     Towerville	7e					 		
73B:     Gretor	3w	3.00	70.00	14.00	3.50	3.00	60.00	6.00
73C:     Gretor	3e	3.00	65.00	13.00	3.50	3.00	55.00	6.00
74:   Ashville	4w	 	70.00	14.00	3.00	2.50	55.00	5.00
75:   Alden	5w							
76A:   Orpark	3w	2.50	70.00	14.00	3.50	3.00	60.00	6.00
76B:   Orpark	3w	3.00	75.00	15.00	3.50	3.00	65.00	6.50
76C:   Orpark	3e	3.00	75.00	15.00	3.50	3.00	60.00	6.50
77A:   Chippewa	4w		65.00	13.00	2.50	2.00	50.00	4.50
78A:   Hornell	3w	2.50	75.00	15.00	3.00	2.50	65.00	6.00
78B:     Hornell	3w	3.00	75.00	15.00	3.50	3.00	65.00	6.00
78C:     Hornell	3e	3.00	65.00	13.00	3.00	3.00	65.00	6.00
78D:     Hornell	4e	2.50	60.00	12.00	3.00	3.00	60.00	5.50
78F:     Hornell	7e							
Hudson	7e							
79B:     Mongaup	2e	4.50	80.00	16.00	3.50	4.00	70.00	7.00
79C:     Mongaup	3e	4.50	75.00	15.00	3.50	4.00	65.00	7.00
79D:     Mongaup	4e	3.00	70.00	14.00	3.00	3.50	60.00	6.00
79E:     Mongaup	6e							5.50
79F:   Mongaup	7e							
80A:     Fremont	3w	3.00	75.00	15.00	3.50	3.00	65.00	6.50
80B:     Fremont	3w	3.00	80.00	16.00	3.50	3.00	65.00	6.50

Table 6.-Land Capability and Yields per Acre of Crops and Pasture-Continued

Map symbol and soil name	   Land   capa-   bility	  Alfalfa hay 	Corn	  Corn silage 	Grass hay	Grass-	Oats	Pasture
	   	Tons	Bu	Tons	Tons	Tons	Bu	AUM
80C: Fremont	     3e	3.00	70.00	14.00	3.50	3.00	60.00	6.00
81B: Varysburg	     2w	5.50	115.00	23.00	4.00	4.50	     85.00	     8.50
81C: Varysburg	     3e	4.50	95.00	19.00	4.00	4.50	     75.00	     8.50
81D: Varysburg	     4e	4.00	80.00	16.00	3.00	4.00	     65.00	7.00
81E: Varysburg	     6e					   		     5.50
82F: Rock outcrop	     7s				 	   	   	 
Manlius	   7s 				 		 	   
84B: Elko	   2e	4.50	80.00	16.00	3.00	3.50	65.00	7.00
84C: Elko	   3e	4.50	75.00	15.00	3.00	3.50	60.00	7.00
85B: Onoville	   2e	4.50	80.00	16.00	3.00	3.50	65.00	7.00
85C: Onoville	   3e	4.50	75.00	15.00	3.00	3.50	60.00	7.00
85D: Onoville	   4e	3.50	70.00	14.00	2.50	3.00	   55.00	6.50
86B: Eldred	   2e	4.50	80.00	16.00	3.00	3.50	65.00	7.00
86C: Eldred	   3e	4.50	75.00	15.00	3.00	3.50	60.00	7.00
86D: Eldred	   4e 	3.50	70.00	   14.00 	2.50	3.00	   55.00	6.50
87B: Shongo	   3w 	3.00	75.00	   15.00	3.50	3.00	60.00	6.50
87C: Shongo	   3e	3.00	70.00	   14.00 	3.00	2.50	   55.00	6.00
88A: Ivory	   3w 	2.50	65.00	13.00	3.00	2.50	60.00	6.00
88B: Ivory	   3w	3.00	65.00	13.00	3.00	3.00	60.00	6.00
88C: Ivory	   3e	3.00	60.00	12.00	3.00	3.00	   55.00	6.00
88D: Ivory	   4e 	2.50	55.00	12.00	3.00	2.50	45.00	5.00

Table 6.-Land Capability and Yields per Acre of Crops and Pasture-Continued

Map symbol and soil name	Land capa- bility	  Alfalfa hay    	Corn	  Corn silage 	Grass hay	   Grass-  legume hay	   Oats 	Pasture
		Tons	Bu	Tons	Tons	Tons	Bu	AUM
89B: Portville	   3w 	3.00	85.00	17.00	3.50	   3.00 	   65.00 	6.50
89C: Portville	   3e 	3.00	75.00	15.00	3.50	   3.00 	   60.00 	6.50
90A: Brinkerton	   4w 	 	70.00	14.00	3.00	2.50	   55.00 	5.00
90B: Brinkerton	   4w 	 	70.00	14.00	3.00	2.50	   55.00 	5.00
91A: Palms	   5w	     		 		 	   	
92: Carlisle	   5w					   	 	
93: Saprists, inundate	     8w	 				   	   	
94B: Frewsburg	     3w	3.00	70.00	14.00	3.50	3.00	   60.00 	6.50
94C: Frewsburg	   3e 	3.00	65.00	13.00	3.50	3.00	   55.00 	6.00
95B: Mandy	   2e	4.50	80.00	16.00	3.50	4.00	   70.00	7.00
95C: Mandy	   3e	4.50	75.00	15.00	3.50	4.00	   65.00	7.00
95D: Mandy	   4e 	3.00	65.00	13.00	3.00	3.50	   60.00	6.00
95E: Mandy	   6e	 				   	 	5.50
95F: Mandy	   7e	 				   	 	
96B: Carrollton	   2e	4.50	80.00	16.00	3.50	4.00	   65.00	7.00
96C: Carrollton	   3e	4.50	75.00	15.00	3.50	4.00	   60.00	7.00
96D: Carrollton	   4e	3.50	65.00	13.00	3.00	3.50	   55.00	6.50
96E: Carrollton	     6e	 				   	   	5.50
96F: Carrollton	     7e	 				   	   	
97B: Kinzua	     2e	   4.50	90.00	18.00	3.50	     4.50	     70.00	7.50
97C: Kinzua	     3e	4.50	85.00	17.00	3.50	   4.50	   65.00 	7.50
97D: Kinzua	   4e	4.00	75.00	15.00	3.00	3.50	60.00	6.50

Table 6.-Land Capability and Yields per Acre of Crops and Pasture-Continued

Map symbol and soil name	Land capa- bility	Alfalfa hay    	Corn	Corn silage	Grass hay	Grass-  legume hay   	Oats	Pasture
		Tons	Bu	Tons	Tons	Tons	Bu	AUM
97E: Kinzua	6e							5.50
97 <b>F:</b> Kinzua	7e							
98D: Kinzua	6s					   		5.00
98E: Kinzua	7s					   		4.00
99B: Buchanan	2w	4.50	90.00	18.00	4.00	4.50	75.00	7.50
99C: Buchanan	3e	4.00	80.00	16.00	4.00	4.00	65.00	7.50
99D: Buchanan	4e	3.50	70.00	14.00	3.50	3.50	60.00	6.50
100: Udorthents						   		
101: Udorthents, refuse substratum						     		
102C: Mandy	7s					   		6.00
Rock outcrop								
103C: Knapp Creek	7s					   		6.00
Rock outcrop								
104B:   Flatiron	7s	4.50	85.00	17.00	3.50	4.00	75.00	7.50
104C: Flatiron	7s	4.50	80.00	16.00	3.50	4.00	75.00	7.50
104D: Flatiron	7s	3.50	70.00	14.00	3.00	3.50	70.00	6.50
104E:   Flatiron	7s					   		5.50
108D: Hartleton	4e	3.50	70.00	14.00	3.00	3.50	60.00	6.00
108E: Hartleton	6e					   		5.50
108F: Hartleton	7e	   				   		
131: Lamson	4w		70.00	14.00	3.00	2.50	55.00	5.00

Table 6.-Land Capability and Yields per Acre of Crops and Pasture-Continued

Map symbol and soil name	   Land   capa-   bility	  Alfalfa hay    	Corn	  Corn silage 	Grass hay	   Grass-  legume hay	   Oats 	   Pasture   
		Tons	Bu	Tons	Tons	Tons	Bu	AUM
132B: Wiscoy	   3w 	3.00	80.00	16.00	3.50	   3.00	   65.00 	   6.50 
132C: Wiscoy	   3e	2.50	70.00	14.00	3.50	   3.00	   60.00 	   6.00 
135C: Hudson	   3e	4.50	80.00	16.00	4.00	   4.00	   65.00	   8.00 
135D: Hudson	   4e 	4.00	75.00	15.00	3.50	   4.00	   60.00	7.00
135E: Hudson	   6e 	 		 		   	   	   5.50 
140D: Dunkirk	   4e 	4.50	80.00	16.00	4.00	   4.50	60.00	7.50
140E: Dunkirk	   6e 	 		 		   	   	   5.50
185C: Onoville	   7s 	     		i     	 	   	   	   6.00 
185D: Onoville	   7s 	     		i     	 	   	   	   5.50 
187B: Shongo	   7s 	     		i     	 	   	   	   5.50 
187C: Shongo	   7s	     		     		   	   	   5.50 
188B: Cavode	   3w 	3.00	60.00	12.00	3.00	3.00	60.00	6.00
188C: Cavode	   3e 	3.00	55.00	12.00	3.00	3.00	   55.00 	   6.00 
188D: Cavode	   4e 	2.50	55.00	12.00	3.00	   2.50 	   45.00 	   5.00 
189B: Portville	   7s 	 		 		   	   	   5.50 
189C: Portville	   7s 	 		 		   	   	   5.50 
195C: Mandy	   7s 	 		 		   	   	   6.00 
195D: Mandy	   7s 	 		 	 	   	   	   5.50 
195E: Mandy	   7s 	     		     		   	   	   4.50 
199C: Buchanan	   7s 	 		   		   		6.00
199D: Buchanan	   7s 	 		   		   	   	   5.50 
289B: Ceres	   2e 	   4.50 	90.00	18.00	3.50	   4.50 	70.00	7.50

Table 6.—Land Capability and Yields per Acre of Crops and Pasture—Continued

Map symbol and soil name	Land capa- bility	Alfalfa hay	Corn	Corn silage	Grass hay	Grass-	Oats	Pasture
		Tons	Bu	Tons	Tons	Tons	Bu	AUM
289C: Ceres	3e	4.50	85.00	17.00	3.50	4.50	   65.00	7.50
289D: Ceres	4e	4.00	75.00	15.00	3.00	3.50	60.00	6.00
289E: Ceres	6e	   				   	   	5.50
289F: Ceres	7e	   				   	   	
400: Wakeville	3w	3.00	85.00	17.00	3.50	3.00	     65.00	6.00
496B: Gilpin	2e	4.50	90.00	18.00	3.50	     4.50	     70.00	7.50
496C: Gilpin	3e	4.50	85.00	17.00	3.50	     4.50	     65.00	7.50
496D: Gilpin	4e	4.00	80.00	16.00	3.00	3.50	60.00	6.50
496E: Gilpin	6e						   	5.50
496F: Gilpin	7e						   	
497D: Rayne	4e	4.00	80.00	16.00	3.00	3.50	     60.00	6.50
497E: Rayne	6e					   		5.50
497F: Rayne	7e					   		
498E: Rayne	7s					   		4.50
800: Holderton	3w	3.00	85.00	17.00	3.50	3.00	     65.00	6.00
PG: Pits, gravel		   				   	   	
Ur: Urban land		   				   	   	
W: Water						   	   	

Table 7.—Acreage of Map Unit Major Components by Capability Class and Subclass

Capability   subclass	Acreage
 	   17,731
	4,570
e	37,189
w	47,299
s	26,719
e	169,014
w	115,038
e	98,813
į w	11,660
w	17,785
e	78,492
s	1,227
e	22,471
s	30,760
į w	1,250
s	308
	subclass  e w s e w e w e w e w w

Table 8.-Forestland Productivity

e	70 85 85	of wood fiber cu ft/ac	black locust, black walnut, eastern white pine, Norway spruce
.e	70 85 85 85 67	43 57 72	black locust, black walnut, eastern white pine, Norway spruce
.e	70 85 85 85 67	43 57 72	black locust, black walnut, eastern white pine, Norway spruce
.e	70 85 85 85 67 85	43 57 72	black locust, black walnut, eastern white pine, Norway spruce
.e	85 85 85 67 85	57 72               	walnut, eastern   white pine, Norway   spruce
.e	85 85 85 67 85	57 72               	walnut, eastern   white pine, Norway   spruce
e	85       67   85	72	white pine, Norway   spruce 
.e	     67   85	43	spruce
	85	!	    black walnut
	85	!	black walnut
	!		
		!	eastern white
		72	spruce
.e	70	43	black walnut,
		!	eastern white pine, Norway
	83	7 <u>2</u> 	pine, Noiway   spruce
	65 	43 	white spruce 
	   60 	   43 	  eastern white pine,   white spruce 
	67	43	black walnut,
	85	72	eastern white
	85 	72	pine, Norway spruce, white spruce
.e	70	43	black walnut,
	85	57	eastern white
	85     	72   	pine, Norway   spruce, white   spruce
A	   70	   43	black cherry, black
		57	walnut, eastern
	85	72	white pine, Norway spruce
	50 	29 	white spruce 
	70		  hlogh lasses
_	!	!	black locust,   eastern white
		43	pine, European
		43	larch, Norway spruce, white spruce
	e e e e e e	e	e

Table 8.—Forestland Productivity—Continued

	Potential prod	uctivi	ty	
Map symbol and soil name	Common trees	  Site  index 	Volume of wood fiber cu ft/ac	Trees to manage
11C: Ischua	  black cherry   northern red oak	     70   65	     43   57	black locust,
	sugar maple    white ash	60   70 	43   43   43	pine, European larch, Norway spruce, white spruce
11D: Ischua	black cherry northern red oak sugar maple	   70   65   60	   43   57   43	black locust, eastern white pine, European
	white ash	70   70 	43	larch, Norway spruce, white spruce
11E: Ischua	  black cherry  northern red oak	   70   65	   43   43	  black locust,   eastern white
	sugar maple   white ash	60 70	43 43 	pine, European larch, Norway spruce, white spruce
11F: Ischua	  black cherry  northern red oak	   70   65	   43   57	  black locust,   eastern white
	sugar maple   white ash	60   70 	43 43	pine, European larch, Norway spruce, white spruce
12B: Franklinville	  black cherry  northern red oak	   70   70	   43   57	eastern white pine, European larch,
	sugar maple  white ash	65   70 	43 43	Norway spruce, red pine, white spruce
12C: Franklinville	  black cherry  northern red oak	   70   70	   43   57	  eastern white pine,   European larch,
	sugar maple  white ash	65   70 	43   43 	Norway spruce, red pine, white spruce
12D: Franklinville	northern red oak	   70   70	   43   57	  eastern white pine,   European larch,
	sugar maple	65   70 	43   43 	Norway spruce, red pine, white spruce
12E: Franklinville	northern red oak	   70   70	   43   57	  eastern white pine,   European larch,
	sugar maple  white ash	65   70 	43   43 	Norway spruce, red pine, white spruce
14B: Hornellsville	  northern red oak  sugar maple  white ash	   70   60   70	   57   43   43	  eastern white pine,   European larch,   Norway spruce,
	İ	<u> </u> 	<u> </u> 	white spruce

Table 8.-Forestland Productivity-Continued

	Potential productivity			i
Map symbol and soil name	Common trees	Site	   Volume  of wood   fiber	Trees to manage
		ļ	cu ft/ac	
14C: Hornellsville	northern red oak sugar maple white ash	   70   60   70	   57   43   43	eastern white pine, European larch, Norway spruce,
			ļ i	white spruce
15B: Willdin	    American beech  black cherry	       70	       43	    black locust,   eastern white
	northern red oak	70   60	43	pine, European
	sugar maple	60	43	larch, Norway
	white ash	70	43	spruce, white   spruce
15C: Willdin	  American beech	 	 	  hlagk loguet
MIIIGIII	black cherry	   70	43	black locust,   eastern white
	northern red oak	60	43	pine, European
	sugar maple	60	43	larch, Norway
	white ash    	70   	43   	spruce, white spruce
15D: Willdin	   <b> </b>	ļ		
Willdin	American beech black cherry	   70	   43	black locust,   eastern white
	northern red oak	60	43	pine, European
	sugar maple	60	43	larch, Norway
	white ash  	70 	43   	spruce, white   spruce
16A:				
Almond	northern red oak	65   70	43   43	eastern white pine, European larch,
	sugar maple	65	43	Norway spruce,
	white ash	70	43	white spruce
16B:			į	
Almond	northern red oak	65   70	43   43	eastern white pine,
	sugar maple	70   65	43	European larch,   Norway spruce,
	white ash	70	43	white spruce
16C: Almond	    northern red oak	     65	     43	  -  eastern white pine,
	red maple	70	43	European larch,
	sugar maple	65	43	Norway spruce,
	white ash	70	43	white spruce
178:	į			
Salamanca	black cherry  northern red oak	70   65	43 43	black locust,   eastern white
	sugar maple	60	43	eastern white   pine, European
	white ash	70	43	larch, Norway spruce, white
17C:		   	   	spruce   
Salamanca	: =	70	43	black locust,
	northern red oak	65	43	eastern white
	sugar maple   white ash	60   70 	43   43 	pine, European   larch, Norway   spruce, white   spruce
	I			

Table 8.-Forestland Productivity-Continued

Potential productivity				<u> </u>
Map symbol and soil name	Common trees	Site	   Volume  of wood  _fiber	Trees to manage
			cu ft/ac	
17D: Salamanca	    black cherry  northern red oak	     70   65	     43   43	    black locust,   eastern white
	sugar maple	60	43	pine, European
	white ash	70   	43   	larch, Norway spruce, white spruce
17E: Salamanca	  black cherry	   70	   43	  black locust,
24-4	northern red oak	65	43	eastern white
	sugar maple	60	43	pine, European
	white ash	70   	43   	larch, Norway spruce, white spruce
18A: Pope	  sugar maple	   67	   43	  black walnut,
Tope	white ash	85	57	eastern white
	white oak	85   	72   	pine, Norway   spruce, white   spruce
19A: Olean	hlagk ghorry	   80	   57	  hlask shorre
Olean	black cherry   northern red oak	80   75	57   57	black cherry,   eastern white
	sugar maple	70	43	pine, European
	white ash	85   	57   	larch, Norway   spruce, white   spruce
19B: Olean	  black cherry	   80	   57	  black cherry,
	northern red oak	75	57	eastern white
	sugar maple   white ash	70   85 	43   57 	pine, European   larch, Norway   spruce, white   spruce
20A: Unadilla	  black cherry	   80	   57	  black cherry,
	eastern white pine	85	143	eastern white
	northern red oak	80	57	pine, European
	sugar maple   white ash  	70   95 	43   72 	larch, Norway   spruce, red pine,   white spruce
20B:			 	1.1
Unadilla	black cherry   eastern white pine	80   85	57   143	black cherry,   eastern white
	northern red oak	80	57	pine, European
	sugar maple	70	43	larch, Norway
	white ash    	95   	72   	spruce, red pine,   white spruce 
20C:	hlagk ghamme	00		hlagk charm-
Unadilla	black cherry  eastern white pine	80   85	57   143	black cherry,   eastern white
	northern red oak	80	57	pine, European
	sugar maple white ash	70 95	43 72	larch, Norway   spruce, red pine,   white spruce
			İ	

Table 8.-Forestland Productivity-Continued

	Potential prod	uctivi	ty	<u> </u>
Map symbol and soil name	Common trees	  Site  index 	Volume of wood	Trees to manage
			cu ft/ac	
20D:				
Unadilla	black cherry  eastern white pine	80   85	57   143	black cherry,   eastern white
	northern red oak	80	57	pine, European
	sugar maple	70	43	larch, Norway
	white ash	95 	72 	spruce, red pine, white spruce
22A:		 	 	
Allard	American beech			eastern white pine,
	black cherry  eastern white pine	70   75	43   143	European larch,   Norway spruce, red
	sugar maple	63	43	pine
	white ash	76	43	
22B:				
Allard	American beech  black cherry	   70	43	eastern white pine, European larch,
	eastern white pine	75	143	Norway spruce, red
	sugar maple	63	43	pine
	white ash	76 	43	
25A: Chenango	American beech	i i	i 	  eastern white pine,
Circulango	northern red oak	80	57	European larch,
	sugar maple	70	43	Norway spruce, red
	white ash	76 	43	pine
25B:			į	
Chenango	American beech  northern red oak	   80	   57	eastern white pine, European larch,
	sugar maple	70	43	Norway spruce, red
	white ash	76	43	pine
25C:				
Chenango	American beech			eastern white pine,
	northern red oak  sugar maple	80   70	57 43	European larch,   Norway spruce, red
	white ash	76	43	pine
25D:		 	<u> </u>	
Chenango	American beech			eastern white pine,
	northern red oak  sugar maple	80   70	57 43	European larch,   Norway spruce, red
	white ash	76	43	pine
25E:	 			
Chenango	American beech  northern red oak	   80	   57	eastern white pine, European larch,
	sugar maple	70	43	Norway spruce, red
	white ash	76	43	pine
25F:				
Chenango	American beech  northern red oak	   80	   57	eastern white pine, European larch,
	sugar maple	70	43	Norway spruce, red
	white ash	76	43	pine
26A:				
Chenango, fan	American beech	   80	   57	eastern white pine,
	northern red oak  sugar maple	80   70	57 43	European larch,   Norway spruce, red
	white ash	76	43	pine
	I	I	1	I

Table 8.-Forestland Productivity-Continued

	Potential prod	uctivi	ty	<u> </u>
Map symbol and soil name	Common trees	Site	   Volume  of wood   fiber	Trees to manage
		i	cu ft/ac	
26B:		l I	 	
Chenango, fan	American beech			eastern white pine,
	northern red oak	80	57	European larch,
	sugar maple   white ash	70	43	Norway spruce, red
	wnite asn	76 	43 	pine 
27A:		į	İ	
Castile	black cherry	70	43	eastern white pine,
	northern red oak sugar maple	70   63	57   43	Norway spruce, red pine, white spruce
	white ash	85	57	pine, white spide
OFF		ļ		
27B: Castile	  black cherry	   70	   43	  eastern white pine,
Cabcife	northern red oak	70	57	Norway spruce, red
	sugar maple	63	43	pine, white spruce
	white ash	85	57	İ
28A:		i	! 	
Scio	black cherry	80	57	eastern white pine,
	eastern white pine	85	143	European larch,
	northern red oak sugar maple		57   43	Norway spruce, red pine, white spruce
	white ash	85	57	pine, white spidee
29A:				
Chenango	American beech	 	 	eastern white pine,
5	northern red oak	80	57	European larch,
	sugar maple	70	43	Norway spruce, red
29B:	white ash	76 	43 	pine 
Chenango	American beech	i		eastern white pine,
	northern red oak	80	57	European larch,
	sugar maple   white ash	:	43	Norway spruce, red
	wnite asn	76 	43 	pine 
29C:		ļ	į	
Chenango	American beech  northern red oak	   80	   57	eastern white pine, European larch,
	sugar maple	80   70	1 43	Norway spruce, red
	white ash	76	43	pine
29D:		l I	 	 
Chenango	American beech			eastern white pine,
	northern red oak		57	European larch,
	sugar maple   white ash		43	Norway spruce, red
	wnite asn	76 	43 	pine 
29E:		į	į	
Chenango	:	:		eastern white pine,
	northern red oak  sugar maple	80   70	57   43	European larch,   Norway spruce, red
	white ash		43	pine
31B:		 	 	 
Collamer	  black cherry	80	   57	eastern white pine,
	northern red oak	80	57	European larch,
	sugar maple   white ash	70   85	43   57	Norway spruce, white spruce
			, <i>,</i>	"Tice ppince

Table 8.-Forestland Productivity-Continued

	Potential prod	ıctivi	ty	<u> </u>
Map symbol and soil name	Common trees	  Site  index	Volume  of wood   fiber	Trees to manage
31C:		   	cu ft/ac   	
Collamer	black cherry   northern red oak  sugar maple	80   80   70	57   57   43	eastern white pine, European larch, Norway spruce,
32A:	white ash    	85   	57   	white spruce   
Churchville	red maple  sugar maple  white ash	70 60 75	43 43 43	eastern white pine,   Norway spruce,   white spruce
32B: Churchville	· -	     70	43	eastern white pine,
	sugar maple  white ash	60   75 	43   43 	Norway spruce,   white spruce
33A: Wallington	sugar maple	70 65	   43   43	eastern white pine, Norway spruce,
34:	white ash	75   	43   	white spruce   
Getzville	eastern white pine  red maple	65   65 	114   43 	eastern white pine, white spruce
35A: Rhinebeck	  red maple  sugar maple   white ash	   70   65   75	   43   43   43	  eastern white pine,   European larch,   Norway spruce,
35B:	İ I	j I	j I	white spruce
Rhinebeck	red maple	70 65 75	43   43   43	eastern white pine, European larch, Norway spruce, white spruce
35C: Rhinebeck	 	     70   65	   43   43	    eastern white pine,   European larch,
	white ash	75   	43   	Norway spruce, white spruce
36: Canadice	eastern white pine red maple	   55   50	   86   29	eastern white pine, white spruce
37A: Tonawanda	red maple  red maple	   70   60	   43   43	eastern white pine, European larch,
	white ash	75   	43   	Norway spruce, white spruce
37B: Tonawanda	sugar maple	   70   60	   43   43	eastern white pine, European larch,
	white ash    	75   	43   	Norway spruce,   white spruce
38A: Niagara	  red maple  sugar maple  white ash	   70   60   75	   43   43	eastern white pine, European larch,
		,5 	43	white spruce 

Table 8.—Forestland Productivity—Continued

Map symbol and soil name		Potential prod	uctivi	ty	<u> </u>
38B:		Common trees		of wood fiber	Trees to manage
Niagara			 	cu ft/ac 	
Halsey		sugar maple	60	43	European larch, Norway spruce,
Williamson		:	!	!	: -
Northern red oak					
White ash	Williamson	: -	:	!	:
Williamson			:		larch, Norway spruce, red pine,
Northern red oak		    hlask shames		     <b>57</b>	    hlash lasush
White ash	WIIIIamson		:	!	
### Spruce, red pine, white spruce  ### Spruce			70		
Williamson		white ash    	85     	57   	spruce, red pine,
northern red oak		hlack cherry	80	57	hlack loguet
Sugar maple	WIIIIamson	: -	:	!	!
Barcelona			:		larch, Norway spruce, red pine,
red maple	41A:		 	 	
Sugar maple	Barcelona	•	:	!	: -
# white ash			1		
Barcelona		, 5	!		white spide
Barcelona	41B:		 	 	
Sugar maple	Barcelona	American beech		i	eastern white pine,
## white ash			:	!	
Black cherry			!	!	white spruce 
Black cherry	424.				
Sugar maple		  black cherry	80	   57	eastern white pine,
# white ash   85   57   pine   42B:  Elnora   black cherry   80   57   eastern white pine, northern red oak   80   57   European larch, sugar maple   70   43   Norway spruce, red white ash   85   57   pine   43:  Canandaigua, silt loam   eastern white pine   65   114   eastern white pine,		: -	!	57	·
Elnora		!		!	:
Elnora	42B.				
northern red oak 80 57 European larch, sugar maple 70 43 Norway spruce, red white ash 85 57 pine  43: Canandaigua, silt loam eastern white pine 65 114 eastern white pine,		  black cherrv	80	   57	eastern white pine.
white ash				:	: -
43: Canandaigua, silt loam eastern white pine 65 114 eastern white pine,		:	1	!	
Canandaigua, silt loam eastern white pine 65 114 eastern white pine,	42.	İ	İ	į	
		eastern white pine	65	   114	eastern white pine.
	<u> </u>	: =		!	:

Table 8.-Forestland Productivity-Continued

	Potential produ	uctivi	ty	
Map symbol and soil name	Common trees	  Site  index 	Volume   of wood   fiber	Trees to manage
		ļ ļ	cu ft/ac 	
44: Canandaigua, mucky silt loam	eastern white pine	     55   55	     114   43	eastern white pine, white spruce
45:		 	 	
Canandaigua, acid substratum	  eastern white pine  red maple	   65   65	   114   43	  eastern white pine,   white spruce
46:				
Swormville	red maple   sugar maple	70   60	43   43	eastern white pine, Norway spruce,
	white ash	75	43	white spruce
47A:		 	 	 
Minoa	· -	70   60	43 43	eastern white pine, European larch,
	sugar maple   white ash	60   75 	43   43 	European Tarch,   Norway spruce,   white spruce
48A:			   	
Colonie	northern red oak	80   80	57   57	eastern white pine,   European larch,
	sugar maple	70	43	red pine
	white ash	85 	57 	
48B: Colonie	hlagh ghorry	   80	   57	eastern white pine,
COlonid	northern red oak	80	57	European larch,
	sugar maple	70 85	43 57	red pine
			3,	
48C: Colonie	  black cherry	   80	   57	  eastern white pine,
	northern red oak	80   70	57 43	European larch,
	sugar maple	85	57	red pine
49A:		 	 	
Red Hook	· -	70	43	eastern white pine,
	sugar maple white ash	60   75	43 43	Norway spruce,   white spruce
50A:		 	 	
Canaseraga	!	   80		eastern white pine,
	black cherry   northern red oak	80	57   57	European larch,   Norway spruce, red
	sugar maple	70 85	43 57	pine, white spruce
	white ash	65	57	
50B: Canaseraga	American beech	 	 	  eastern white pine,
-	black cherry	80	57	European larch,
	northern red oak  sugar maple	80   70	57 43	Norway spruce, red pine, white spruce
	white ash	85	57	
50C:		<u> </u>		
Canaseraga	American beech   black cherry	   80	   57	eastern white pine, European larch,
	northern red oak	80	57	Norway spruce, red
	sugar maple	70	43	pine, white spruce
	white ash	85 	57 	

Table 8.-Forestland Productivity-Continued

	Potential prod	uctivi	ty	<u> </u>
Map symbol and soil name	Common trees		Volume of wood	Trees to manage
			cu ft/ac	
51B: Chadakoin	    American beech	   	   	    eastern white pine,
	black cherry   northern red oak	80	57 57	European larch, Norway spruce, red
	sugar maple   white ash	70   85	43   57	pine, white spruce 
51C: Chadakoin	American beech	   	   	 
Cnadakoin	black cherry		   57	eastern white pine, European larch,
	northern red oak	!	57	Norway spruce, red
	sugar maple	70	43	pine, white spruce
	white ash	85 	57 	 
51D: Chadakoin	American beech	   	   	    eastern white pine,
chadano in	black cherry	80	57	European larch,
	northern red oak	80	57	Norway spruce, red
	sugar maple   white ash	70	43	pine, white spruce
	wnite asn	85 	57 	
51E: Chadakoin	American beech	 	 	eastern white pine,
	black cherry	80	57	European larch,
	northern red oak	80	57	Norway spruce, red
	sugar maple   white ash	70   85	43   57	pine, white spruce
51F: Chadakoin	American beech	 	 	eastern white pine,
Chadakoth	black cherry	80	57	European larch,
	northern red oak	80	57	Norway spruce, red
	sugar maple   white ash	70   85	43   57	pine, white spruce
		65	] 	
52B: Valois	American beech	 		 
Valois	black cherry	80	   57	eastern white pine, European larch,
	northern red oak	80	57	Norway spruce, red
	sugar maple	70	43	pine, white spruce
	wnite asn	85 	57 	 
52C: Valois	American beech	 	 	eastern white pine,
Valors	black cherry		   57	European larch,
	northern red oak		57	Norway spruce, red
	sugar maple   white ash	70   85	43   57	pine, white spruce
		65	] J,	
52D:	American beech	 		ongtorn white min-
Valois	black cherry		   57	eastern white pine, European larch,
	northern red oak	80	57	Norway spruce, red
	sugar maple white ash	70 85	43 57	pine, white spruce
	wille asii	65	5 <i>1</i> 	
52E:	  Amoriaan beesh			ongtorn white mine
Valois	American beech black cherry	   80	   57	eastern white pine,  European larch,
	northern red oak	80	57	Norway spruce, red
	sugar maple	:	43	pine, white spruce
	white ash	85 	57 	

Table 8.-Forestland Productivity-Continued

	Potential prod	uctivi	ty	<u> </u>
Map symbol and soil name	Common trees	  Site  index 	   Volume  of wood   fiber	Trees to manage
		į ———	cu ft/ac	
52F:		 	 	
Valois	American beech	!	     57	eastern white pine,
	northern red oak	!	57   57	European larch,   Norway spruce, red
	sugar maple		43	pine, white spruce
	white ash	85	57	
53C:		 	 	
Valois	American beech	!		eastern white pine,
	black cherry	!	57	European larch,
	northern red oak sugar maple		57   43	Norway spruce, red pine, white spruce
	white ash	85	57	
**- 1 d				
Volusia	black cherry   red maple		43   43	eastern white pine, European larch,
	sugar maple		43	Norway spruce,
	white ash	75	43	white spruce
Mardin	  black cherry	   70	   43	  eastern white pine,
Marum	northern red oak		43	European larch,
	sugar maple		43	Norway spruce, red
	white ash	70	43	pine, white spruce
55A:		 	 	 
Darien	black cherry	65	43	eastern white pine,
	red maple	!	43	European larch,
	sugar maple  white ash	64   75	43   43	Norway spruce, white spruce
55B:				
Darien	black cherry   red maple	65   70	43   43	eastern white pine, European larch,
	sugar maple	64	43	Norway spruce,
	white ash	75	43	white spruce
55C:		 	 	
Darien	black cherry	65	43	eastern white pine,
	red maple	70	43	European larch,
	sugar maple  white ash	64   75	43   43	Norway spruce,   white spruce
56B:	   Amorigan bassb	70	43	ongtorn white nice
Chautauqua	American beech  black cherry		43   43	eastern white pine, European larch,
	northern red oak	:	57	Norway spruce, red
	sugar maple		43	pine, white spruce
	white ash	70 	43 	 
56C:				
Chautauqua	American beech		43	eastern white pine,
	black cherry   northern red oak	:	43   57	European larch,   Norway spruce, red
	sugar maple		43	pine, white spruce
	white ash	70	43	_
56D:		 	 	
	American beech	70	43	eastern white pine,
	black cherry	70	43	European larch,
	northern red oak sugar maple		57 43	Norway spruce, red pine, white spruce
	white ash	70	43	pine, while spide
	İ	İ	İ	İ

Table 8.-Forestland Productivity-Continued

	Potential produ	uctivi	ty	
Map symbol and soil name	Common trees	Site	Volume  of wood   fiber	Trees to manage
	 	 	cu ft/ac	
57A: Busti	  black cherry  red maple  sugar maple  white ash	   65   70   64   75	43 43 43 43 43	eastern white pine, European larch, Norway spruce, white spruce
57B:	 	 	 	
Busti	black cherry red maple sugar maple white ash	65 70 64 75	43 43 43 43	eastern white pine, European larch, Norway spruce, white spruce
£7.0.		į		
57C: Busti	black cherry   red maple   sugar maple   white ash	   65   70   64   75	43 43 43 43 43	eastern white pine, European larch, Norway spruce, white spruce
58B: Rushford	black cherry  red maple  sugar maple  white ash	   65   70   65   75	43   43   43   43	black locust,   eastern white   pine, European   larch, Norway   spruce, white   spruce
58C:		j I	į i	   
Rushford	black cherry	65 70 65 75	43 43 43 43 43	black locust, eastern white pine, European larch, Norway spruce, white
		 	 	spruce 
59B: Yorkshire	American beech black cherry northern red oak sugar maple white ash	   70   70   70   60   75	43   43   57   43   47	black locust,   eastern white   pine, European   larch, Norway   spruce, red pine,   white spruce
				white spides
59C: Yorkshire	American beech black cherry northern red oak sugar maple white ash	   70   70   70   60   75	43 43 57 43 43 47	black locust, eastern white pine, European larch, Norway spruce, red pine, white spruce
59D:		ļ		
Yorkshire	American beech black cherry northern red oak sugar maple white ash	70   70   70   60   75	43   43   57   43   47	black locust,   eastern white   pine, European   larch, Norway   spruce, red pine,   white spruce
60A: Napoli	American beechblack cherry northern red oak sugar maple white ash	   65   65   70   60   70	43 43 57 43 43	eastern white pine, European larch, Norway spruce, white spruce

Table 8.-Forestland Productivity-Continued

	Potential produ	uctivi	ty		
Map symbol and soil name	Common trees	  Site  index 	Volume  of wood   fiber	Trees to manage	
			cu ft/ac		
60B: Napoli	    American beech	     65	     43	    eastern white pine,	
	black cherry   northern red oak	65	43	European larch, Norway spruce,	
	sugar maple	60 70	43 43	white spruce	
60C:		 		 	
Napoli	American beech   black cherry	65 65	43 43	eastern white pine, European larch,	
	northern red oak	70	57	Norway spruce,	
	sugar maple	60	43	white spruce	
	white ash	70 	43		
60D:	<u> </u>				
Napoli	American beech black cherry	65   65	43   43	eastern white pine,  European larch,	
	northern red oak	03   70	57	Norway spruce,	
	sugar maple	60	43	white spruce	
	white ash	70	43		
61B:	 	 			
Schuyler	American beech	70	43	eastern white pine,	
	black cherry   northern red oak	70	43	European larch,	
	sugar maple	70   60	57 43	Norway spruce, red   pine, white spruce	
	white ash	75	47		
61C:	l			l	
Schuyler	American beech	70	43	eastern white pine,	
-	black cherry	70	43	European larch,	
	northern red oak	70	57 43	Norway spruce, red	
	sugar maple   white ash	60   75	43	pine, white spruce	
		į			
61D: Schuyler	  American beech	   70	   43	  eastern white pine,	
20	black cherry	70	43	European larch,	
	northern red oak	70	57	Norway spruce, red	
	sugar maple   white ash	60   75	43   47	pine, white spruce	
		/3	<del>-</del> - /		
61E:		70	42		
Schuyler	American beech  black cherry	70   70	43   43	eastern white pine,  European larch,	
	northern red oak	70	57	Norway spruce, red	
	sugar maple	60	43	pine, white spruce	
	white ash	75 	47	 	
61F:					
Schuyler	American beech	70	43	eastern white pine,	
	black cherry   northern red oak	70   70	43   57	European larch,   Norway spruce, red	
	sugar maple	60	43	pine, white spruce	
	white ash	75	47		
62B:		 	 		
	  black cherry	70	43	eastern white pine,	
	northern red oak	63	43	European larch,	
	sugar maple   white ash	60   70	43   43	Norway spruce, red pine, white spruce	
		,0	33		

Table 8.—Forestland Productivity—Continued

	Potential prod	uctivi	rity		
Map symbol and soil name	Common trees	Site	Volume	Trees to manage	
	l	<u> </u>	cu ft/ac	<u> </u>	
	] 		Cu 10/ac	 	
62C: Mardin	  black cherry	   70	43	eastern white pine,	
	northern red oak	63	43	European larch,	
	sugar maple	60	43	Norway spruce, red	
	white ash	70	43	pine, white spruce	
62D:	 		 	 	
	  black cherry	70	43	eastern white pine,	
	northern red oak	63	43	European larch,	
	sugar maple	60	43	Norway spruce, red	
	white ash	70	43	pine, white spruce	
63B:	   Amonicon booch	70	   43	 	
Langford	American beech  black cherry	70   75	43	eastern white pine,  European larch,	
	northern red oak	65	43	Norway spruce, red	
	sugar maple	60	43	pine, white spruce	
	white ash	70	43		
	İ	j	j	İ	
63C:					
Langford	American beech	70	43	eastern white pine,	
	black cherry	75	43	European larch,	
	northern red oak sugar maple	65   60	43   43	Norway spruce, red pine, white spruce	
	white ash	70	43	pine, white spide	
		/0	10		
63D:	İ	İ	İ	İ	
Langford	American beech	70	43	eastern white pine,	
	black cherry	75	43	European larch,	
	northern red oak	65	43	Norway spruce, red	
	sugar maple   white ash	60   70	43   43	pine, white spruce	
	WHITE ASH	/0	4:3 	 	
64C:		¦	 		
Mardin	black cherry	70	43	eastern white pine,	
	northern red oak	63	43	European larch,	
	sugar maple	60	43	Norway spruce, red	
	white ash	70	43	pine, white spruce	
66B:	 	 	 	 	
Volusia	  black cherry	65	43	eastern white pine,	
	red maple	70	43	European larch,	
	sugar maple	60	43	Norway spruce,	
	white ash	75	43	white spruce	
CE2					
67A: Dalton	  black cherry	   65	   43	eastern white nine	
Dar Con	red maple	65	43   43	eastern white pine, European larch,	
	sugar maple	64	43	Norway spruce,	
	white ash	75	43	white spruce	
		[			
67B:					
Dalton	black cherry	65	43	eastern white pine,	
	red maple  sugar maple	70   64	43   43	European larch,   Norway spruce,	
	sugar maple  white ash	75	43   43	white spruce,	
		,5			
68A:		j	j		
Volusia	black cherry	65	43	eastern white pine,	
	red maple	70	43	European larch,	
	sugar maple	60	43	Norway spruce,	
	white ash	75 	43	white spruce	
	I	I	I	I	

Table 8.—Forestland Productivity—Continued

	Potential prod	uctivi	ty	
Map symbol and soil name	Common trees	  Site  index 	Volume  of wood   fiber	Trees to manage
			cu ft/ac	
68B:	 		 	 
Volusia	  black cherry	65	43	eastern white pine,
	red maple	70	43	European larch,
	sugar maple	60	43	Norway spruce,
	white ash	75 	43 	white spruce 
68C:		İ		
Volusia	black cherry	65	43	eastern white pine,
	red maple   sugar maple	70   60	43   43	European larch,   Norway spruce,
	white ash	75	43	white spruce
		į	İ	_
69A: Erie	  black cherry	   65	   43	  eastern white pine,
FII6	red maple	70	43	European larch,
	sugar maple	64	43	Norway spruce,
	white ash	75	43	white spruce
69B:		 	 	
Erie	  black cherry	65	43	  eastern white pine,
	red maple	70	43	European larch,
	sugar maple	64	43	Norway spruce,
	white ash	75 	43 	white spruce
69C:		İ		
Erie	black cherry	65	43	eastern white pine,
	red maple	70	43   43	European larch,
	sugar maple   white ash	64   75	43	Norway spruce, white spruce
		j		
71E:	 	70	42	 
Mongaup	American beech  black cherry	70   70	43   43	European larch,   Norway spruce, red
	northern red oak	70	57	pine
	sugar maple	60	43	
	white ash	75	47	İ
71F:		 	 	
Mongaup	American beech	70	43	European larch,
	black cherry	70	43	Norway spruce, red
	northern red oak sugar maple	70   60	57   43	pine 
	white ash	75	47	
		į	İ	
72B: Towerville	American beech	   70	   43	  eastern white pine,
1044GT ATTT6	black cherry	70   70	43	European larch,
	northern red oak	70	57	Norway spruce
	sugar maple	60	43	
	white ash	75 	47 	
72C:			 	
Towerville	American beech	70	43	eastern white pine,
	black cherry	70	43	European larch,
	northern red oak sugar maple	70   60	57   43	Norway spruce
	white ash	75	47	
500				
72D: Towerville	American beech	   70	   43	  eastern white pine,
	black cherry	70	43	European larch,
	northern red oak	70	57	Norway spruce
	sugar maple	60 75	43 47	
	white ash			

Table 8.-Forestland Productivity-Continued

	Potential prod	uctivi	ty	<u> </u>
Map symbol and soil name	Common trees	  Site  index	Volume  of wood   fiber	Trees to manage
		<u> </u>	cu ft/ac 	
72E: Towerville	American beech   black cherry   northern red oak	   70   70   70	43 43 57	eastern white pine, European larch, Norway spruce
	sugar maple white ash	60   75	43   47	
72F:		į	į	
Towerville	American beech   black cherry	70 70	43 43	eastern white pine,  European larch,
	northern red oak	70	57	Norway spruce
	sugar maple	60   75	43 47	
73B:			 	
Gretor	black cherry	65	43	eastern white pine,
	red maple   sugar maple	70   64	43	European larch,   Norway spruce,
	white ash	75	43	white spruce
73C:				
Gretor	black cherry   red maple	65   70	43   43	eastern white pine, European larch,
	sugar maple	64	43	Norway spruce,
	white ash	75	43	white spruce
74:		<u> </u>		
Ashville	red maple  sugar maple	55   60 	29   43 	eastern white pine,   white spruce 
75: Alden	  red maple	   50	   29 	  white spruce
76A:				
Orpark	black cherry   red maple	65   70	43	eastern white pine, European larch,
	sugar maple	64	43	Norway spruce,
	white ash	75	43	white spruce
76B:				
Orpark	black cherry  red maple	65   70	43   43	eastern white pine, European larch,
	sugar maple	64	43	Norway spruce,
	white ash	75	43	white spruce
76C:		65		
Orpark	black cherry   red maple	65   70	43	eastern white pine, European larch,
	sugar maple	64	43	Norway spruce,
	white ash	75 	43	white spruce
77A: Chippewa	  red maple	     50	   29 	  white spruce 
78A:				
Hornell	black cherry   red maple	65   70	43	eastern white pine, European larch,
	sugar maple	64	43	Norway spruce,
	white ash	75	43	white spruce

Table 8.-Forestland Productivity-Continued

	Potential prod	uctivi	ty	
Map symbol and soil name	Common trees	  Site  index 	Volume  of wood   fiber	Trees to manage
		 	cu ft/ac	
78B:		İ		
Hornell	black cherry	65	43	eastern white pine,
	red maple	70   64	43 43	European larch,   Norway spruce,
	white ash	75	43	white spruce
78C:		 	 	]
Hornell	black cherry	65	43	eastern white pine,
	red maple	70	43	European larch,
	sugar maple   white ash	64	43	Norway spruce,
	wnite asn	75 	43 	white spruce 
78D:	į			ļ . <b>,</b>
Hornell	black cherry   red maple	65   70	43   43	eastern white pine, European larch,
	sugar maple	64	43	Norway spruce,
	white ash	75	43	white spruce
78F:		 	 	
Hornell	American beech	70	43	eastern white pine,
	black cherry	70	43	European larch,
	northern red oak	70	57 43	Norway spruce,
	sugar maple  white ash	60   75	43	white spruce 
Hudson	American beech	   70	   43	  black cherry, black
nuuson	black cherry	70	43	walnut, eastern
	northern red oak	80	57	white pine
	sugar maple	70	43	
	white ash	85 	57 	
79B:	į			
Mongaup	American beech black cherry	70   70	43	European larch,
	northern red oak	70   70	<del>1</del> 3   57	Norway spruce, red
	sugar maple	60	43	
	white ash	75	47	
79C:	 	 	 	
Mongaup	American beech	70	43	European larch,
	black cherry	70	43	Norway spruce, red
	northern red oak  sugar maple	70   60	57 43	pine
	white ash	75	47	
79D:		 	 	
Mongaup	American beech	70	43	European larch,
- <del>-</del>	black cherry	70	43	Norway spruce, red
	northern red oak	70	57	pine
	sugar maple	60   75	43   47	
70.5.	İ	İ		<u> </u> 
79E: Mongaup	American beech	   70	   43	  European larch,
	black cherry	70	43	Norway spruce, red
	northern red oak	70	57	pine
	sugar maple	60	43	
	white ash	75 	47 	

Table 8.—Forestland Productivity—Continued

	Potential produ	ıctivi	ty	
Map symbol and soil name	Common trees	  Site  index 	Volume  of wood   fiber  cu ft/ac	Trees to manage
79F:	 		Cu	
Mongaup	American beechblack cherrynorthern red oaksugar maple	70 70 70 60	43 43 57 43	European larch, Norway spruce, red pine
	white ash	75	47	
80A: Fremont	  black cherry  red maple	   65   70	43 43	eastern white pine, European larch,
	sugar maple   white ash	64 75	43 43	Norway spruce,   white spruce
80B: Fremont	  black cherry  red maple	   65   70	43 43	eastern white pine, European larch,
	sugar maple   white ash	64	43	Norway spruce,   white spruce
80C: Fremont	  black cherry	     65	43	eastern white pine,
	red maple  sugar maple  white ash	70 64 75	43 43 43	European larch, Norway spruce, white spruce
81B: Varysburg	    American beech	     70	     43	eastern white pine,
	black cherry   northern red oak  sugar maple	70 80 70	43 57 43	European larch,   Norway spruce, red   pine
	white ash	85	57	<u>-</u> 
81C: Varysburg	  American beech  black cherry	70 70	43 43	eastern white pine, European larch,
	northern red oak  sugar maple  white ash	80   70   85	57   43   57	Norway spruce, red   pine 
81D: Varysburg	 	70	43	eastern white pine,
	black cherry   northern red oak   sugar maple   white ash	70   80   70   85	43   57   43   57	European larch, Norway spruce, red pine
81E: Varysburg	    American beech	     70	     43	    eastern white pine,
varysburg	black cherry   northern red oak	70 80	43 57	European larch, Norway spruce, red
	sugar maple  white ash	70   85 	43   57 	pine   
82F: Rock outcrop		 	 	
Manlius	  black cherry   northern red oak  sugar maple	70 70 70 70	43 57 43	black cherry, eastern white pine, European larch, Norway
	 		<u> </u> 	spruce, red pine

Table 8.-Forestland Productivity-Continued

	Potential prod	uctivi	ty	
Map symbol and soil name	   Common trees   	  Site  index 	Volume of wood fiber	Trees to manage
			cu ft/ac	
84B:		 	 	 
Elko	American beech	70	43	eastern white pine
	black cherry	80	57	larch, Norway
	northern red oak sugar maple	75   70	47   43	spruce, white   spruce
	white ash		47	sprace
	white oak			
84C:	 	 	 	 
Elko	American beech	70	43	  eastern white pine
	black cherry	80	57	larch, Norway
	northern red oak	75	47	spruce, white
	sugar maple	70	43	spruce
	white ash   white oak	80 	47 	 
85B: Onoville	American beech	   70	   43	eastern white pine
Onoville	black cherry	70   80	<del>1</del> 3   57	larch, Norway
	northern red oak	75	47	spruce, white
	sugar maple	70	43	spruce
	white ash	80	47	
	white oak		 	 
85C:				
Onoville	American beech	70	43	eastern white pine
	black cherry	80	57	larch, Norway
	northern red oak sugar maple	75   70	47   43	spruce, white   spruce
	white ash		47	spruce
	white oak			
85D:		 	 	 
Onoville	American beech	70	43	eastern white pine
	black cherry	80	57	larch, Norway
	northern red oak	75	47	spruce, white
	sugar maple	70   80	43   47	spruce
	white ash		<del></del> -	
O.C.D.				
86B: Eldred	American beech	70	   43	  eastern white pine
	black cherry	80	57	larch, Norway
	northern red oak	75	47	spruce, white
	sugar maple	70	43	spruce
	white ash   white oak	80 	47 	 
		ļ	į	
86C: Eldred	  American beech	   70	   43	  eastern white pine
PT/77 6/7	black cherry	70   80	43   57	larch, Norway
	northern red oak	75	47	spruce, white
	sugar maple	70	43	spruce
	white ash	80	47	
	white oak	 	 	
86D:		İ		
Eldred	American beech	70	43	eastern white pine
	black cherry	80	57   47	larch, Norway
	northern red oak  sugar maple	75   70	47   43	spruce, white   spruce
	white ash	80	47	501403
	white oak			j

Table 8.-Forestland Productivity-Continued

	Potential produ	uctivi	ty	<u> </u>	
Map symbol and soil name	Common trees	!	Volume  of wood   fiber	Trees to manage	
		 	cu ft/ac 		
87B: Shongo	  black cherry   northern red oak  sugar maple	   65   65   65	43 43 43	European larch, Norway spruce, sugar maple, white	
	white ash	75	43	ash	
87C:		 	 		
Shongo	black cherry  northern red oak  sugar maple	65 65 65	43 43 43	European larch,  Norway spruce,  sugar maple, white	
	white ash	75	43	ash	
88A:		 	 		
Ivory	black cherry	65	43	eastern white pine,	
	northern red oak sugar maple	65   65	43   43	Norway spruce, white spruce	
	white ash	75	43		
88B:		 		 	
	  black cherry	65	43	eastern white pine,	
	northern red oak	65	43	Norway spruce,	
	sugar maple   white ash	65   75	43   43	white spruce	
		,5	13		
88C:	  black cherry	   65	   43	eastern white pine,	
Ivory	northern red oak	65	43	Norway spruce,	
	sugar maple	65	43	white spruce	
	white ash	75 	43		
88D:					
Ivory	black cherry   northern red oak	65	43 43	eastern white pine, Norway spruce,	
	sugar maple	65   65	43	white spruce	
	white ash	75	43	-	
89B:		 	 		
Portville	black cherry	65	43	European larch,	
	northern red oak sugar maple	65   65	43 43	Norway spruce, sugar maple, white	
	white ash	75	43	ash	
90.0					
89C: Portville	  black cherry	   65	43	  European larch,	
	northern red oak	65	43	Norway spruce,	
	sugar maple   white ash	65   75	43   43	sugar maple, white ash	
		,5	13		
90A: Brinkerton	  red maple	   50 	   29 	  white spruce 	
90B: Brinkerton	  red maple	     50	   29	  white spruce	
91A:					
Palms	:		0	tamarack	
	red maple	55   80	29 29		
	tamarack	61	57		
	white ash		0		

Table 8.-Forestland Productivity-Continued

	Potential prod	uctivi	ty	
Map symbol and soil name	Common trees	  Site  index	Volume  of wood   fiber	Trees to manage
		i	cu ft/ac	
92:	,	İ		
Carlisle	green ash   quaking aspen	!	0   0	tamarack 
	red maple	56	29	
	silver maple		29	
	swamp white oak white ash	 	0   0	
93: Saprists, inundated		   	   	
94B:	 	l	 	 
Frewsburg	: =	65	43	eastern white pine,
	northern red oak  sugar maple	65 65	43   43	Japanese larch,   Norway spruce,
	white ash	75	43	white spruce
94C:		 	 	
Frewsburg	black cherry	65	43	eastern white pine,
	northern red oak sugar maple	65   65	43   43	Japanese larch,   Norway spruce,
	white ash	75	43	white spruce
95B:	 	 	 	
Mandy	American beech	70	43	black cherry,
	black cherry	80	57	eastern white
	northern red oak  sugar maple	80   70	57   43	pine, larch, red   pine, white spruce
	white ash	85	57	pine, white spide
	white oak	ļ	j	
95C:				
Mandy	American beech	70	43	black cherry,
	black cherry   northern red oak	80   80	57   57	eastern white pine, larch, red
	sugar maple	70	43	pine, white spruce
	white ash	85	57	
	white oak	 	 	
95D:	American beech	   70	   43	hlask shamm
Mandy	black cherry	80	57	black cherry,   eastern white
	northern red oak	80	57	pine, larch, red
	sugar maple	70	43	pine, white spruce
	white ash   white oak	85 	57 	
95E:		 	 	
Mandy	American beech	70	43	black cherry,
	black cherry	80	57	eastern white
	northern red oak  sugar maple	80   70	57   43	pine, larch, red pine, white spruce
	white ash		57	pine, white spide
	white oak			 
95 <b>F:</b>		ļ		
Mandy	American beech	:	43	black cherry,
	black cherry	80   80	57   57	eastern white
			. 5/	pine, larch, red
	northern red oak	70	43	pine, white spruce
	sugar maple    white ash		43 57	pine, white spruce

Table 8.—Forestland Productivity—Continued

	Potential produ	uctivi	ty	
Map symbol and soil name	Common trees	  Site  index 	Volume of wood	Trees to manage
		į ———	cu ft/ac	
96B:	 	 	 	
Carrollton	American beech	70	43	black cherry,
	black cherry	80	57	eastern white
	northern red oak	80	57	pine, larch, red
	sugar maple white ash	70   85	43   57	pine, white spruce
	white oak			
96C:		<u> </u>	 	
Carrollton	American beech	70	43	black cherry,
	black cherry	80	57	eastern white
	northern red oak	80	57	pine, larch, red
	sugar maple white ash	70   85	43   57	pine, white spruce
	white ash			
96D:		 	 	
Carrollton	American beech	70	43	black cherry,
	black cherry	80	57	eastern white
	northern red oak	80	57	pine, larch, red
	sugar maple white ash	70   85	43   57	pine, white spruce
	white ash			
96E:		 	 	
Carrollton	American beech	70	43	black cherry,
	black cherry	80	57	eastern white
	northern red oak	80	57	pine, larch, red
	sugar maple	70	43	pine, white spruce
	white ash   white oak	85 	57 	 
96F:		 		
Carrollton	American beech	70	43	black cherry,
	black cherry	80	57	eastern white
	northern red oak	80	57	pine, larch, red
	sugar maple	70	43	pine, white spruce
	white ash   white oak	85 	57 	
97B:		 	 	
Kinzua	American beech	70	43	eastern white pine,
	black cherry	80	57	European larch,
	northern red oak	80	57	red pine
	sugar maple	70	43	
	white ash   white oak	85 	57 	 
97C:		 	 	
Kinzua	American beech	70	43	eastern white pine,
	black cherry	80	57	European larch,
	northern red oak	80	57	red pine
	sugar maple	70	43	
	white ash   white oak	85 	57 	 
97D:		 	 	
Kinzua	American beech	70	43	eastern white pine,
	black cherry	80	57	European larch,
	northern red oak	80	57	red pine
	sugar maple	70	43	
	white ash	85	57	
	white oak			

Table 8.—Forestland Productivity—Continued

	Potential produ	ıctivi	ty	
Map symbol and soil name	Common trees	Site	   Volume  of wood   fiber	Trees to manage
			cu ft/ac	
97E: Kinzua	American beech black cherry northern red oak sugar maple white ash white oak	   70   80   80   70   85 	43 57 57 43 57	eastern white pine, European larch, red pine
97F: Kinzua	American beech black cherry northern red oak sugar maple white ash white oak	70   80   80   70   85	43   57   57   43   57	eastern white pine, European larch, red pine
98D:	 	 		
Kinzua	American beech black cherry northern red oak sugar maple white ash white oak	70 80 80 70 85	43 57 57 43 57	eastern white pine, European larch, red pine
98E: Kinzua	American beech black cherry northern red oak sugar maple white ash white oak	   70   80   80   70   85 	43   57   57   43   57	eastern white pine, European larch, red pine
QQD.	 	 		]
99B: Buchanan	American beech	   70   80   75   70   80	43   57   47   43   47	eastern white pine, larch, Norway spruce, white spruce
99C:	 	 		]
Buchanan	American beech black cherry northern red oak sugar maple white ash white oak	75	43 57 47 43 47	eastern white pine, larch, Norway spruce, white spruce
99D:		 	 	
Buchanan	American beech black cherry northern red oak sugar maple white ash white oak	75	43 57 47 43 47	eastern white pine, larch, Norway spruce, white spruce
100: Udorthents	 	   	   	   

Table 8.-Forestland Productivity-Continued

	Potential prod	ıctivi	ty		
Map symbol and soil name	Common trees	Site index	Volume   ofiwerd	Trees to manage	
			cu ft/ac		
101: Udorthents, refuse substratum		     	     		
102C:			 		
Mandy	American beech  black cherry	   70   80   80	   43   57	  black cherry,   eastern white   pine, larch, red	
	northern red oak  sugar maple	80   70	57 43	pine, larch, red   pine, white spruce	
	white ash	85	57	pine, while bpidee	
	white oak				
Park automor					
Rock outcrop			 	 	
103C:			! 		
Knapp Creek	American beech	70	43	black cherry,	
	black cherry	80	57	eastern white	
	northern red oak	80	57	pine, larch, red	
	sugar maple	70	43	pine, white spruce	
	white ash   white oak	85	57 	]	
	white oak	 	 		
Rock outcrop					
104B:		 	 	 	
Flatiron	American beech	70	43	  black cherry,	
	black cherry	80	57	eastern white	
	northern red oak	80	57	pine, European	
	sugar maple	70	43	larch, Norway	
	white ash	85	57	spruce, red pine,	
	white oak			white spruce	
104C:		 	 		
Flatiron	American beech	70	43	black cherry,	
	black cherry	80	57	eastern white	
	northern red oak	80	57	pine, European	
	sugar maple	70	43	larch, Norway	
	white ash   white oak	85	57	spruce, red pine, white spruce	
	white oak	! 		white spides	
104D:	American beech				
Flatiron	black cherry	70   80	43   57	black cherry,   eastern white	
	northern red oak	80	57	pine, European	
	sugar maple	70	43	larch, Norway	
	white ash	85	57	spruce, red pine,	
	white oak			white spruce	
104E:		 	 		
Flatiron	American beech	70	43	black cherry,	
	black cherry	80	57	eastern white	
	northern red oak	80	57	pine, European	
	sugar maple	70	43	larch, Norway	
	white ash   white oak	85 	57 	spruce, red pine,	
	white Oak			white spruce 	
108D:	<u> </u>				
Hartleton	American beech	70	43	eastern white pine,	
	black cherry   northern red oak	80   80	57   57	European larch, red pine	
	sugar maple	80   70	57   43	   red bine	
	white ash	70   85	57		
	white oak				
	İ		İ	İ	

Table 8.—Forestland Productivity—Continued

	Potential prod	uctivi	ty	
Map symbol and soil name	Common trees	  Site  index 	Volume of wood fiber	Trees to manage
			cu ft/ac	
108E: Hartleton	    American beech	     70	     43	    eastern white pine,
	black cherry	!	57	European larch,
	northern red oak sugar maple	!	57   43	red pine
	white ash		57	
	white oak			
108F:		 	 	 
Hartleton	American beech	70	43	eastern white pine,
	black cherry	!	57	European larch,
	northern red oak	!	57	red pine
	sugar maple  white ash		43   57	 
	white ash		57 	 
		İ		
131:				
Lamson	eastern white pine red maple	!	114   43	eastern white pine
	swamp white oak	!	<del>-</del>	 
	_	į		
132B:	  hlask shamme		42	  block above:
Wiscoy	black cherry  red maple	!	43   43	black cherry,   eastern white
	sugar maple	64	43	pine, European
	white ash	75	43	larch, Norway
	ĺ	İ	ĺ	spruce, white
				spruce
132C:		l I	 	
Wiscoy	black cherry	65	43	black cherry,
	red maple	70	43	eastern white
	sugar maple	64	43	pine, European
	white ash	75 	43	larch, Norway   spruce, white
		i	 	spruce
		į	į	_
135C: Hudson	  American beech	   70	   43	  black cherry, black
naason	black cherry	70	43	walnut, eastern
	northern red oak	80	57	white pine
	sugar maple	70	43	
	white ash	85	57	İ
135D:			 	
Hudson	American beech	:	43	black cherry, black
	black cherry	70	43	walnut, eastern
	northern red oak sugar maple		57   43	white pine
	white ash		57	
		į	İ	
135E: Hudson	American beech	   70	   43	  black cherry, black
11449011	black cherry	!	43	walnut, eastern
	northern red oak	80	57	white pine
	sugar maple		43	
	white ash	85	57	
140D:			 	
Dunkirk	American beech	!	43	European larch,
	black cherry		43	Norway spruce, red
	northern red oak sugar maple		57   43	pine, white spruce
	white ash		43   57	

Table 8.—Forestland Productivity—Continued

	Potential produ	ıctivi	ty	
Map symbol and soil name	Common trees	Site	Volume  of wood   fiber	Trees to manage
			cu ft/ac	
140E: Dunkirk	American beech black cherry northern red oak	   70   70   80	43 43 57	European larch, Norway spruce, red pine, white spruce
	sugar maple	70	43	
185C:	white ash    	85   	57   	
Onoville	American beech	70	43	eastern white pine,
	black cherry	80	57	larch, Norway
	northern red oak sugar maple	75   70	47   43	spruce, white   spruce
	white ash	80	47	spruce
	white oak			
	į	İ	İ	
185D:				
Onoville	American beech	70   80	43   57	eastern white pine,
	black cherry   northern red oak	80   75	57   47	larch, Norway   spruce, white
	sugar maple	70	43	spruce
	white ash	80	47	
	white oak			
187B: Shongo	  black cherry	   65	   43	  European larch,
bioligo	northern red oak	65	43	Norway spruce,
	sugar maple	65	43	sugar maple, white
	white ash	75	43	ash
1074				
187C: Shongo	  black cherry	   65	   43	  European larch,
Shongo	northern red oak	65	43	Norway spruce,
	sugar maple	65	43	sugar maple, white
	white ash	75	43	ash
188B:		 		
Cavode	  black cherry	65	43	eastern white pine,
	northern red oak	65	43	Norway spruce,
	sugar maple	65	43	white spruce
	white ash	75 	43	
188C:		! 		
Cavode	-	65	43	eastern white pine,
	northern red oak	65	43	Norway spruce,
	sugar maple   white ash	65   75	43 43	white spruce
188D:	William asir	,5	13	
Cavode	black cherry	65	43	eastern white pine,
	northern red oak	65	43	Norway spruce,
	sugar maple	65	43	white spruce
	white ash	75 	43	
189B:				
Portville	: -	65	43	European larch,
	northern red oak	65	43	Norway spruce,
	sugar maple   white ash	65   75	43	sugar maple, white
	willte asn	75 	43 	ash 
189C:				
Portville	black cherry	65	43	European larch,
	northern red oak	65	43	Norway spruce,
	sugar maple   white ash	65   75	43 43	sugar maple, white   ash
		,5	3	

Table 8.-Forestland Productivity-Continued

	Potential prod	uctivi	ty			
Map symbol and soil name	Common trees	  Site  index 	Volume  of wood   fiber	Trees to manage		
	 	 	cu ft/ac 	 		
195C: Mandy	  American beech  black cherry	   70   80	   43   57	  black cherry,   eastern white		
	northern red oak sugar maple	80   70	57 43	pine, larch, red pine, white spruce		
	white ash   white oak	85	57	pine, while spide		
195D:		 	 			
Mandy	American beech	70	43	black cherry,		
	black cherry   northern red oak	80   80	57   57	eastern white pine, larch, red		
	sugar maple	30   70	43	pine, raich, red   pine, white spruce		
	white ash	85	57			
	white oak					
195E:		 	 			
Mandy	American beech	70	43	black cherry,		
	black cherry	80	57	eastern white		
	northern red oak sugar maple	80   70	57 43	pine, larch, red   pine, white spruce		
	white ash	85	57	pine, white spides		
	white oak		ļ			
199C:		 	 			
Buchanan	American beech	70	43	eastern white pine,		
	black cherry	80	57	larch, Norway		
	northern red oak	75	47	spruce, white		
	sugar maple   white ash	70   80	43 47	spruce		
	white oak					
199D:		 	 			
Buchanan	American beech	70	43	eastern white pine,		
	black cherry	80	57	larch, Norway		
	northern red oak sugar maple	75   70	47 43	spruce, white		
	white ash	70   80	47	spruce		
	white oak					
289B:		 	 			
Ceres	American beech	70	43	black cherry,		
	black cherry	80	57	eastern white		
	northern red oak	80   70	57 43	pine, larch, red		
	sugar maple   white ash	70   85	<del>1</del> 3   57	pine, white spruce		
	white oak					
289C:		 	 			
Ceres	American beech	70	43	black cherry,		
	black cherry	80	57	eastern white		
	northern red oak	80	57	pine, larch, red		
	sugar maple   white ash	70   85	43   57	pine, white spruce		
	white oak					
289D:		 	 			
Ceres	American beech	70	43	black cherry,		
	black cherry	80	57	eastern white		
	northern red oak	80   70	57 43	pine, larch, red		
	sugar maple   white ash	70   85	43   57	pine, white spruce 		
	white oak					

Table 8.-Forestland Productivity-Continued

	Potential prod	uctivi	ty	
Map symbol and soil name	Common trees	  Site  index 	Volume  of wood   fiber	Trees to manage
	 	 	cu ft/ac	
289E:	İ	İ	İ	
Ceres	American beech	70	43	black cherry,
	black cherry   northern red oak	80   80	57 57	eastern white pine, larch, red
	sugar maple	70	43	pine, raich, red   pine, white spruce
	white ash	85	57	
	white oak			
289F:		 	 	 
Ceres	American beech	70	43	  black cherry,
	black cherry	80	57	eastern white
	northern red oak	80	57	pine, larch, red
	sugar maple	70	43	pine, white spruce
	white ash	!	57	
	white oak		 	 
400:				
Wakeville	red maple	70	43	eastern white pine,
	sugar maple	60	43	European larch,
	white ash	75 	43 	Norway spruce, white spruce
40 CD :				
496B: Gilpin	American beech	   70	   43	  black cherry,
p	black cherry	80	57	eastern white
	northern red oak	80	57	pine, Japanese
	sugar maple	70	43	larch, Norway
	white ash	85	57	spruce
	white oak			
496C:		 	 	 
Gilpin	American beech	70	43	black cherry,
	black cherry	80	57	eastern white
	northern red oak	!	57	pine, Japanese
	sugar maple	70	43	larch, Norway
	white ash   white oak	85 	57	spruce
	white oak			 
496D:		į	į	
Gilpin	American beech	70	43	black cherry,
	black cherry    northern red oak	80   80	57   57	eastern white
	sugar maple	70	43	pine, Japanese   larch, tuliptree,
	white ash	!	57	Virginia pine
	white oak			
496E:		 	 	 
Gilpin	American beech	70	43	  black cherry,
•	black cherry		57	eastern white
	northern red oak	80	57	pine, Japanese
	sugar maple		43	larch, Norway
	white ash		57	spruce
	white oak			 
496F:				
Gilpin	American beech	1	43	black cherry,
	black cherry	:	57	eastern white
	northern red oak	80	57	pine, Japanese
	sugar maple	70	43	larch, Norway
		i 0-		i
	white ash   white oak	85	57 	spruce

Table 8.—Forestland Productivity—Continued

	Potential prod			
Map symbol and soil name	Common trees	  Site  index 	   Volume  of wood   fiber	Trees to manage
	[	i	cu ft/ac	
	ļ			
497D: Rayne	American beech	   70	   43	  black cherry,
Rayne	black cherry	80	57	eastern white
	northern red oak	80	57   57	pine, Norway
	sugar maple		43	spruce
	white ash	1	57	501466
	white oak			
497E:		 		
Rayne	American beech	70	43	black cherry,
<del>-</del>	black cherry	80	57	eastern white
	northern red oak	80	57	pine, Norway
	sugar maple	70	43	spruce
	white ash	85	57	į -
	white oak			
497F:		 		
Rayne	American beech	70	43	black cherry,
	black cherry	80	57	eastern white
	northern red oak	80	57	pine, Norway
	sugar maple	70	43	spruce
	white ash	85	57	
498E:	white oak			
Rayne	American beech	   70	43	  black cherry,
Rayne	black cherry	!	57	eastern white
	northern red oak	80	57 57	pine, Norway
	sugar maple	1	43	spruce
	white ash		57	551111
	white oak			
800:		 		
Holderton	red maple	70	43	eastern white pine
	sugar maple	60	43	European larch,
	white ash	75	43	Norway spruce,
				white spruce
PG:		 	[ 	
Pits, gravel				
Ur:		 		
Urban land				
W:		 		
Water				
	l	l		

Table 9.- Hazard of Erosion and Suitability for Roads on Forestland

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	or off-trail erosion		Hazard of erosi on roads and tra		Suitability for roads   (natural surface)		
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	
1: Udifluvents	     40 	    Slight 		    Slight   		  Poorly suited   Flooding   Sandiness	1.00	
Fluvaquents	   35   	  Slight   		  Slight   		  Poorly suited   Flooding   Wetness	1.00	
2: Hamlin	   85   	  Slight 		  Slight 		  Poorly suited   Flooding   Low strength	1.00	
3: Tioga	   85   	  Slight 		  Slight 	     	Poorly suited Flooding Low strength	1.00	
4: Teel	   85   	  Slight 	     	  Slight   		   Poorly suited   Flooding   Low strength   Wetness	  1.00  0.50  0.50	
5: Wayland	     85   	    Slight   		    Slight   		  Poorly suited   Flooding   Wetness   Low strength	  1.00  1.00  0.50	
6A: Wyalusing	     85   	  Slight   		  Slight   		Poorly suited   Flooding   Wetness   Low strength	  1.00  1.00  0.50	
7A: Philo	     85   	  Slight 		  Slight 		Poorly suited Flooding Low strength Wetness	  1.00  0.50  0.50	
8: Middlebury	     85   	  Slight 		  Slight 		  Poorly suited   Flooding   Low strength   Wetness	  1.00  0.50  0.50	
9: Pawling	   85   	  Slight 		  Slight   		  Poorly suited   Flooding   Low strength   Wetness	  1.00  0.50  0.50	

Table 9.—Hazard of Erosion and Suitability for Roads on Forestland—Continued

Map symbol and soil name	Pct. of map unit	of or off-trail erosion		Hazard of erosic		Suitability for roads (natural surface)		
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	
10: Atkins	     85     	  Slight   	         	  Slight   		   Poorly suited   Flooding   Wetness   Low strength	1.00  1.00  0.50	
11B: Ischua	   85     	  Slight   		  Moderate   Slope/erodibility 	    0.50 	Moderately suited Low strength Slope Wetness	0.50	
11C: Ischua	   85     	  Slight   		  Severe   Slope/erodibility 	    0.95 	Moderately suited Slope Low strength Wetness	0.50	
11D: Ischua	   85     	  Moderate   Slope/erodibility 	0.50	  Severe   Slope/erodibility	    0.95 	Poorly suited Slope Low strength Wetness	1.00  0.50  0.50	
11E: Ischua	   85     	  Moderate   Slope/erodibility	0.50	  Severe   Slope/erodibility	    0.95 	Poorly suited Slope Low strength Wetness	1.00  0.50  0.50	
11F: Ischua	   85   	  Severe   Slope/erodibility	    0.75 	  Severe   Slope/erodibility	0.95	Poorly suited Slope Low strength Wetness	1.00  0.50  0.50	
12B: Franklinville	     85   	  Slight 	       	  Moderate   Slope/erodibility	    0.50	Moderately suited Low strength Slope	0.50	
12C: Franklinville	   85   	  Slight   	     	  Severe   Slope/erodibility 	    0.95 	Moderately suited Slope Low strength	0.50	
12D: Franklinville	   85   	  Moderate   Slope/erodibility   	    0.50 	  Severe   Slope/erodibility   	    0.95 	Poorly suited Slope Low strength	1.00	
12E: Franklinville	   85   	  Moderate   Slope/erodibility   	    0.50 	  Severe   Slope/erodibility   	    0.95 	Poorly suited Slope Low strength	1.00	
14B: Hornellsville	   85   	  Slight   	       	  Moderate   Slope/erodibility 	    0.50 	Moderately suited Wetness Low strength Slope	0.50	

Table 9.—Hazard of Erosion and Suitability for Roads on Forestland—Continued

Map symbol and soil name	Pct. of map unit	or off-trail eros:		Hazard of erosic		Suitability for r natural surfac	-	
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Valu	
14C: Hornellsville	     85   	  Moderate   Slope/erodibility 	    0.50 	  Severe   Slope/erodibility 	0.95	Moderately suited Slope Wetness Low strength	    0.50  0.50  0.50	
15B: Willdin	     85   	  Slight 		  Moderate   Slope/erodibility 	0.50	Moderately suited   Low strength   Slope   Wetness	0.50	
15C: Willdin	     85   	  Slight 		  Severe   Slope/erodibility 	0.95	   Moderately suited   Slope   Low strength   Wetness	0.50	
15D: Willdin	     85   	  Moderate   Slope/erodibility 	0.50	  Severe   Slope/erodibility	0.95	Poorly suited Slope Low strength Wetness	1.00	
16A: Almond	     80 	  Slight 		  Slight 		  Moderately suited   Wetness   Low strength	0.50	
16B: Almond	     80   	  Slight 		  Moderate   Slope/erodibility 	0.50	   Moderately suited   Wetness   Low strength   Slope	0.50	
16C: Almond	     80   	  Slight 		  Moderate   Slope/erodibility 	0.50	Moderately suited   Slope   Wetness   Low strength	0.50	
17B: Salamanca	     80 	  Slight 		  Moderate   Slope/erodibility	0.50	Moderately suited Low strength Wetness	0.50	
17C: Salamanca	     80   	  Slight 		  Severe   Slope/erodibility 	0.95	Moderately suited Slope Low strength Wetness	0.50	
17D: Salamanca	     80   	  Moderate   Slope/erodibility 	0.50	  Severe   Slope/erodibility 	0.95	Poorly suited   Slope   Low strength   Wetness	1.00  0.50  0.50	

Table 9.-Hazard of Erosion and Suitability for Roads on Forestland-Continued

Map symbol and soil name	Pct. of map unit	Hazard of off-ros		Hazard of erosic		Suitability for roads (natural surface)		
	unit	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	
17E: Salamanca	     80   	  Moderate   Slope/erodibility 	      0.50   	   Severe   Slope/erodibility 	    0.95 	Poorly suited   Slope   Low strength   Wetness	1.00  0.50  0.50	
18A: Pope	     85 	  Slight	     	  Slight		  Poorly suited   Flooding	1.00	
19A: Olean	     85   	  Slight 	         	  Slight 		   Moderately suited   Sandiness   Low strength   Wetness	0.50	
19B: Olean	   85   	  Slight 	         	  Moderate   Slope/erodibility	    0.50 	   Moderately suited   Sandiness   Low strength   Wetness	0.50	
20A: Unadilla	     85 	  Slight 	     	  Slight		  Moderately suited   Low strength	0.50	
20B: Unadilla	     85 	  Slight	     	  Moderate   Slope/erodibility	      0.50	  Moderately suited   Low strength	0.50	
20C: Unadilla	     85   	  Moderate   Slope/erodibility	      0.50	  Severe   Slope/erodibility	      0.95	  Moderately suited   Slope   Low strength	0.50	
20D: Unadilla	     85   	  Moderate   Slope/erodibility	      0.50	  Severe   Slope/erodibility	      0.95	  Poorly suited   Slope   Low strength	1.00	
22A: Allard	     85 	    Slight 	     	    Slight 		  Moderately suited   Low strength	0.50	
22B: Allard	     85 	  Slight 	     	  Moderate   Slope/erodibility	      0.50	  Moderately suited   Low strength	0.50	
25A: Chenango	     85 	  Slight 	     	  Slight 	     	  Moderately suited   Low strength	0.50	
25B: Chenango	     85   	  Slight 	       	  Moderate   Slope/erodibility	      0.50	  Moderately suited   Low strength   Slope	0.50	
25C: Chenango	     85 	  Slight 	     	  Severe   Slope/erodibility	0.95	  Moderately suited   Slope   Low strength	0.50	

Table 9.—Hazard of Erosion and Suitability for Roads on Forestland—Continued

Map symbol and soil name	Pct. of map unit	or off-trail eros:		Hazard of erosic		Suitability for roads   (natural surface)		
	unic   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	
25D: Chenango	     85   	  Moderate   Slope/erodibility	      0.50	  Severe   Slope/erodibility 	      0.95	  Poorly suited   Slope   Low strength	1.00	
25E: Chenango	   80 	  Moderate   Slope/erodibility	    0.50	  Severe   Slope/erodibility 	    0.95 	  Poorly suited   Slope   Low strength	1.00	
25F: Chenango	   80   	  Severe   Slope/erodibility	    0.75 	  Severe   Slope/erodibility	    0.95 	  Poorly suited   Slope   Low strength	1.00	
26A: Chenango, fan	80	  Slight 	   	  Slight 		  Well suited 		
26B: Chenango, fan	80	  Slight 	   	  Moderate   Slope/erodibility	    0.50	  Moderately suited   Slope	0.50	
27A: Castile	   85 	  Slight 	   	    Slight 		  Moderately suited   Wetness	0.50	
27B: Castile	     85 	  Slight 	       	  Moderate   Slope/erodibility	      0.50	Moderately suited Slope Wetness	0.50	
28A: Scio	     85   	  Slight 	       	  Slight 		  Moderately suited   Low strength   Wetness	0.50	
29A: Chenango	     85	    Slight 	     	    Slight 	     	    Well suited 		
29B: Chenango	   85 	  Slight	   	  Moderate   Slope/erodibility	0.50	  Moderately suited   Slope	0.50	
29C: Chenango	   85 	  Slight 	     	  Moderate   Slope/erodibility	      0.50	  Moderately suited   Slope	0.50	
29D: Chenango	     85 	  Moderate   Slope/erodibility	      0.50	  Severe   Slope/erodibility	      0.95	  Poorly suited   Slope	1.00	
29E: Chenango	     85 	  Moderate   Slope/erodibility	      0.50	  Severe   Slope/erodibility	      0.95	  Poorly suited   Slope	1.00	
31B: Collamer	     85   	  Slight 	       	  Moderate   Slope/erodibility 	      0.50	  Moderately suited   Low strength   Wetness	0.50	

Table 9.-Hazard of Erosion and Suitability for Roads on Forestland-Continued

Map symbol and soil name	Pct. of map	or off-trail eros:		Hazard of erosic		Suitability for roads (natural surface)		
	unit   	l	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	
31C: Collamer	     85   	  Moderate   Slope/erodibility 	    0.50 	  Severe   Slope/erodibility 	      0.95   	   Moderately suited   Slope   Low strength   Wetness	0.50	
32A: Churchville	     85   	  Slight 		  Slight 	       	   Moderately suited   Wetness   Low strength	0.50	
32B: Churchville	   85   	  Slight   		  Moderate   Slope/erodibility	    0.50 	Moderately suited Wetness Low strength	0.50	
33A: Wallington	   85   	  Slight 		  Slight 	       	Poorly suited Wetness Low strength	1.00	
34: Getzville	   80 	  Slight 		  Slight 	     	Poorly suited Wetness Low strength	1.00	
35A: Rhinebeck	   80 	  Slight 		  Slight 		Moderately suited Wetness Low strength	0.50	
35B: Rhinebeck	     80 	  Slight 		  Moderate   Slope/erodibility	      0.50	  Moderately suited   Wetness   Low strength	0.50	
35C: Rhinebeck	     80   	  Moderate   Slope/erodibility 	    0.50 	  Severe   Slope/erodibility 	      0.95 	   Moderately suited   Slope   Wetness   Low strength	0.50	
36: Canadice	     75 	  Slight 		  Slight 	       	Poorly suited Wetness Low strength	1.00	
37A: Tonawanda	     80 	    Slight 		    Slight 	       	Moderately suited Wetness Low strength	0.50	
37B: Tonawanda	     80   	  Slight 		  Moderate   Slope/erodibility 	0.50	  Moderately suited   Wetness   Low strength	0.50	
38A: Niagara	     85   	  Slight 		  Slight 		Moderately suited   Wetness   Low strength	0.50	

Table 9.—Hazard of Erosion and Suitability for Roads on Forestland—Continued

Map symbol and soil name	Pct. of map unit	of or off-trail erosion		Hazard of erosic		Suitability for roads (natural surface)		
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	
38B: Niagara	     85   	  Slight   		  Moderate   Slope/erodibility 	      0.50 	  Moderately suited   Wetness   Low strength	0.50	
39A: Halsey	   85     	  Slight   	       	  Slight   	       	Poorly suited Ponding Wetness Low strength	  1.00  1.00  0.50	
40A: Williamson	   85   	  Slight 	     	  Slight 	     	Moderately suited Low strength Wetness	0.50	
40B: Williamson	   85 	  Slight 	       	  Moderate   Slope/erodibility	    0.50	Moderately suited Low strength Wetness	0.50	
40C: Williamson	   85   	  Moderate   Slope/erodibility 	    0.50 	  Severe   Slope/erodibility	0.95	Moderately suited Slope Low strength Wetness	0.50	
41A: Barcelona	     85   	  Slight 	       	  Slight 	       	  Moderately suited   Wetness   Low strength	0.50	
41B: Barcelona	     85   	  Slight 	       	  Moderate   Slope/erodibility	      0.50	  Moderately suited   Wetness   Low strength	0.50	
42A: Elnora	     80 	  Slight 	       	    Slight 	       	  Moderately suited   Wetness	0.50	
42B: Elnora	   80 	  Slight 		  Moderate   Slope/erodibility	    0.50	Moderately suited   Slope   Wetness	0.50	
43: Canandaigua, silt loam	       80   	    Slight   		    Slight   		   Poorly suited   Ponding   Wetness   Low strength	    1.00  1.00  0.50	
44: Canandaigua, mucky silt loam	     85     	  Slight 	         	    Slight   	         	Poorly suited Ponding Low strength Wetness	    1.00  1.00  1.00	

Table 9.—Hazard of Erosion and Suitability for Roads on Forestland—Continued

Map symbol and soil name	Pct. of map	Hazard of off-road or off-trail eros:		Hazard of erosi		Suitability for roads (natural surface)		
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	
45: Canandaigua, acid substratum	       80   	    Slight 	         	    Slight   		Poorly suited Ponding Wetness Low strength	1.00  1.00  0.50	
46: Swormville	     85     	  Slight   	         	  Slight 	         	   Moderately suited   Wetness   Sandiness   Low strength	0.50  0.50  0.50	
47A: Minoa	     80   	  Slight 	       	  Slight 	       	   Moderately suited   Wetness   Low strength	0.50	
48A: Colonie	80	    Slight 	   	  Slight 	 	  Well suited 		
48B: Colonie	   80 	  Slight 	   	  Moderate   Slope/erodibility	    0.50	  Moderately suited   Slope	0.50	
48C: Colonie	     80 	  Slight	     	  Severe   Slope/erodibility	      0.95	  Moderately suited   Slope	0.50	
49A: Red Hook	     85   	  Slight 	       	  Slight 		   Moderately suited   Wetness   Low strength	0.50	
50A: Canaseraga	     85   	  Slight 	       	  Slight 	       	   Moderately suited   Low strength   Wetness	0.50	
50B: Canaseraga	   85   	  Slight   	       	  Moderate   Slope/erodibility   	    0.50 	Moderately suited Low strength Wetness Slope	0.50 0.50 0.50	
50C: Canaseraga	     85   	  Moderate   Slope/erodibility 	    0.50 	  Severe   Slope/erodibility 	0.95	Moderately suited Slope Low strength Wetness	0.50  0.50  0.50	
51B: Chadakoin	     85   	    Slight 	       	  Moderate   Slope/erodibility 	    0.50	Moderately suited   Low strength   Slope	0.50	
51C: Chadakoin	     85   	  Slight 	       	  Severe   Slope/erodibility 	0.95	   Moderately suited   Slope   Low strength	0.50	

Table 9.—Hazard of Erosion and Suitability for Roads on Forestland—Continued

Map symbol and soil name	Pct. of map unit	Hazard of off-ros		Hazard of erosic		Suitability for r	
	unit   	Rating class and limiting features	Value	Rating class and	Value	Rating class and limiting features	Value
51D: Chadakoin	     85   	  Moderate   Slope/erodibility 	      0.50 	  Severe   Slope/erodibility 	      0.95 	  Poorly suited   Slope   Low strength	1.00
51E: Chadakoin	   85   	  Moderate   Slope/erodibility 	    0.50 	  Severe   Slope/erodibility	    0.95 	  Poorly suited   Slope   Low strength	1.00
51F: Chadakoin	   85   	  Severe   Slope/erodibility	    0.75 	  Severe   Slope/erodibility	    0.95 	  Poorly suited   Slope   Low strength	1.00
52B: Valois	   85     	  Slight   		  Moderate   Slope/erodibility   	    0.50 	Moderately suited   Sandiness   Low strength   Slope	0.50
52C: Valois	   85     	  Slight   	       	  Severe   Slope/erodibility 	    0.95 	Moderately suited   Slope   Sandiness   Low strength	0.50
52D: Valois	     80   	  Moderate   Slope/erodibility 	      0.50 	  Severe   Slope/erodibility 	      0.95 	  Poorly suited   Slope   Sandiness   Low strength	  1.00  0.50  0.50
52E: Valois	     80   	  Moderate   Slope/erodibility 	      0.50	  Severe   Slope/erodibility 	      0.95	Poorly suited   Slope   Sandiness   Low strength	  1.00  0.50  0.50
52F: Valois	     80   	  Severe   Slope/erodibility 	    0.75 	  Severe   Slope/erodibility 	    0.95 	   Poorly suited   Slope   Sandiness   Low strength	  1.00  0.50  0.50
53C: Valois	     30   	  Slight   	       	    Severe   Slope/erodibility 	      0.95 	   Moderately suited   Slope   Sandiness   Low strength	0.50
Volusia	   25   	  Slight     	       	  Severe   Slope/erodibility   	    0.95 	  Poorly suited   Wetness   Slope   Low strength	  1.00  0.50  0.50
Mardin	   20     	  Slight     	       	  Severe   Slope/erodibility   	    0.95   	   Moderately suited   Slope   Low strength   Wetness	  0.50  0.50  0.50

Table 9.-Hazard of Erosion and Suitability for Roads on Forestland-Continued

Map symbol and soil name	Pct. of map unit	or off-trail eros		Hazard of erosic		   Suitability for r   (natural surfac	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
55A: Darien	     85   	  Slight 	       	  Slight   		  Moderately suited   Wetness   Low strength	0.50
55B: Darien	     85   	  Slight 	       	  Moderate   Slope/erodibility 	    0.50 	   Moderately suited   Wetness   Low strength	0.50
55C: Darien	   85     	  Slight   	 	  Severe   Slope/erodibility 	    0.95 	Moderately suited Slope Wetness Low strength	0.50
56B: Chautauqua	   80   	  Slight   	       	   Moderate   Slope/erodibility 	    0.50 	Moderately suited Low strength Slope Wetness	0.50 0.50 0.50
56C: Chautauqua	     80   	  Slight   	         	  Severe   Slope/erodibility   	    0.95 	  Moderately suited   Slope   Low strength   Wetness	0.50 0.50 0.50
56D: Chautauqua	     80   	  Moderate   Slope/erodibility 	      0.50	  Severe   Slope/erodibility 	    0.95 	Poorly suited Slope Low strength Wetness	1.00  0.50  0.50
57A: Busti	     80 	    Slight 	       	  Slight 		Moderately suited Wetness Low strength	0.50
57B: Busti	     80   	  Slight 		  Moderate   Slope/erodibility 	    0.50 	Moderately suited   Wetness   Low strength   Slope	0.50
57C: Busti	     80   	  Slight 	         	  Severe   Slope/erodibility 	0.95	Moderately suited   Slope   Wetness   Low strength	0.50  0.50  0.50
58B: Rushford	     80   	  Slight 	         	  Moderate   Slope/erodibility 	0.50	   Moderately suited   Low strength   Slope   Wetness	0.50
58C: Rushford	   80   	  Slight   	       	  Severe   Slope/erodibility 	    0.95 	Moderately suited Slope Low strength Wetness	0.50 0.50 0.50

Table 9.—Hazard of Erosion and Suitability for Roads on Forestland—Continued

Map symbol and soil name	Pct. of map unit	or off-trail eros:		Hazard of erosic		   Suitability for r   (natural surfac	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
59B: Yorkshire	     85     	  Slight 		  Moderate   Slope/erodibility 	    0.50 	   Moderately suited   Low strength   Slope   Wetness	0.50
59C: Yorkshire	   85     	Slight		  Severe   Slope/erodibility	    0.95   	Moderately suited   Slope   Low strength   Wetness	0.50
59D: Yorkshire	   85     	  Moderate   Slope/erodibility	    0.50 	  Severe   Slope/erodibility	    0.95   	Poorly suited   Slope   Low strength   Wetness	  1.00  0.50  0.50
60A: Napoli	   80   	  Slight 		  Slight 		Poorly suited Wetness Low strength	1.00
60B: Napoli	   80   	  Slight 		  Moderate   Slope/erodibility	    0.50 	Poorly suited Wetness Low strength	1.00
60C: Napoli	   80   	Slight		  Severe   Slope/erodibility	    0.95 	Poorly suited Wetness Slope Low strength	1.00  0.50  0.50
60D: Napoli	   80     	  Moderate   Slope/erodibility	    0.50 	  Severe   Slope/erodibility	    0.95 	Poorly suited   Slope   Wetness   Low strength	  1.00  1.00  0.50
61B: Schuyler	   80 	  Slight 		  Moderate   Slope/erodibility	    0.50	  Moderately suited   Low strength   Wetness	0.50
61C: Schuyler	     80     	  Slight 		  Severe   Slope/erodibility 	    0.95 	   Moderately suited   Slope   Low strength   Wetness	0.50
61D: Schuyler	   80     	  Moderate   Slope/erodibility	0.50	  Severe   Slope/erodibility	    0.95   	   Poorly suited   Slope   Low strength   Wetness	  1.00  0.50  0.50
61E: Schuyler	   80   	   Moderate   Slope/erodibility 	0.50	  Severe   Slope/erodibility 	    0.95 	Poorly suited Slope Low strength Wetness	1.00  0.50  0.50

Table 9.—Hazard of Erosion and Suitability for Roads on Forestland—Continued

Map symbol and soil name	Pct. of map	or off-trail eros:		Hazard of erosic		Suitability for r	
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
61F: Schuyler	     80   	  Severe   Slope/erodibility 	      0.75 	  Severe   Slope/erodibility 	      0.95   	Poorly suited   Slope   Low strength   Wetness	    1.00  0.50  0.50
62B: Mardin	     85     	  Slight   	         	  Moderate   Slope/erodibility 	    0.50 	   Moderately suited   Low strength   Slope   Wetness	  0.50  0.50  0.50
62C: Mardin	   85   	  Slight 		  Severe   Slope/erodibility 	0.95	Moderately suited   Slope   Low strength   Wetness	  0.50  0.50  0.50
62D: Mardin	   85   	  Moderate   Slope/erodibility 	    0.50 	  Severe   Slope/erodibility 	    0.95 	Poorly suited   Slope   Low strength   Wetness	  1.00  0.50  0.50
63B: Langford	     85   	  Slight 	         	  Moderate   Slope/erodibility 	    0.50 	   Moderately suited   Low strength   Slope   Wetness	  0.50  0.50  0.50
63C: Langford	     85   	  Slight 	         	  Severe   Slope/erodibility 	    0.95 	   Moderately suited   Slope   Low strength   Wetness	  0.50  0.50  0.50
63D: Langford	     85   	  Moderate   Slope/erodibility 	    0.50 	  Severe   Slope/erodibility 	    0.95 	   Poorly suited   Slope   Low strength   Wetness	    1.00  0.50  0.50
64C: Mardin	     85   	  Slight 	         	  Severe   Slope/erodibility 	    0.95 	   Moderately suited   Slope   Low strength   Wetness	    0.50  0.50  0.50
66B: Volusia	     80   	  Slight   	         	  Moderate   Slope/erodibility   	      0.50 	  Poorly suited   Wetness   Low strength   Slope	    1.00  0.50  0.50
67A: Dalton	     80   	  Slight   	         	  Slight 	         	  Poorly suited   Wetness   Low strength	    1.00  0.50

Table 9.—Hazard of Erosion and Suitability for Roads on Forestland—Continued

Map symbol and soil name	Pct. of map unit	or off-trail eros		Hazard of erosic		Suitability for r (natural surfac	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
67B: Dalton	     80   	  Slight 	         	  Moderate   Slope/erodibility 	    0.50 	Poorly suited Wetness Low strength Slope	  1.00  0.50  0.50
68A: Volusia	     80   	  Slight 	       	  Slight 		Poorly suited Wetness Low strength	1.00
68B: Volusia	   80     	  Slight 		  Moderate   Slope/erodibility 	    0.50 	Poorly suited Wetness Low strength Slope	  1.00  0.50  0.50
68C: Volusia	   80   	  Slight 		  Severe   Slope/erodibility	    0.95 	Poorly suited Wetness Slope Low strength	  1.00  0.50  0.50
69A: Erie	   80 	  Slight 	       	  Slight 		Poorly suited Wetness Low strength	1.00
69B: Erie	     80   	  Slight   	         	  Moderate   Slope/erodibility 	    0.50 	  Poorly suited   Wetness   Low strength   Slope	  1.00  0.50  0.50
69C: Erie	     80   	  Slight 	         	  Severe   Slope/erodibility	    0.95 	Poorly suited Wetness Slope Low strength	  1.00  0.50  0.50
71E: Mongaup	     85   	  Moderate   Slope/erodibility	    0.50	  Severe   Slope/erodibility	    0.95	Poorly suited Slope Low strength	1.00
71F: Mongaup	     85   	  Severe   Slope/erodibility	      0.75	  Severe   Slope/erodibility	      0.95	Poorly suited Slope Low strength	  1.00  0.50
72B: Towerville	     80   	  Slight 	       	  Moderate   Slope/erodibility	    0.50 	Moderately suited Low strength Wetness	    0.50  0.50
72C: Towerville	   80   	  Slight 	       	  Severe   Slope/erodibility	0.95	Moderately suited Slope Low strength Wetness	  0.50  0.50  0.50

Table 9.—Hazard of Erosion and Suitability for Roads on Forestland—Continued

Map symbol and soil name	  Pct.   of  map  unit	Hazard of off-roa or off-trail eros:		Hazard of erosic		Suitability for roads (natural surface)	
	 	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
72D: Towerville	     80   	  Moderate   Slope/erodibility 	    0.50 	  Severe   Slope/erodibility 	    0.95   	Poorly suited Slope Low strength Wetness	  1.00  0.50  0.50
72E: Towerville	   80     	  Moderate   Slope/erodibility	0.50	  Severe   Slope/erodibility 	    0.95 	Poorly suited Slope Low strength Wetness	  1.00  0.50  0.50
72F: Towerville	   80   	  Severe   Slope/erodibility 	    0.75 	  Severe   Slope/erodibility 	    0.95 	Poorly suited   Slope   Low strength   Wetness	1.00  0.50  0.50
73B: Gretor	     80 	  Slight 		  Moderate   Slope/erodibility	      0.50	  Moderately suited   Wetness   Slope	0.50
73C: Gretor	     80 	  Slight 		  Severe   Slope/erodibility	      0.95	  Moderately suited   Slope   Wetness	0.50
74: Ashville	     80 	  Slight 	     	  Slight 	       	Poorly suited Wetness Low strength	1.00
75: Alden	     85   	  Slight   		  Slight   	         	   Poorly suited   Ponding   Low strength   Wetness	  1.00  1.00  1.00
76A: Orpark	     80 	  Slight 		  Slight 	       	   Moderately suited   Wetness   Low strength	0.50
76B: Orpark	     80 	  Slight 		  Moderate   Slope/erodibility 	      0.50	  Moderately suited   Wetness   Low strength	0.50
76C: Orpark	     80   	  Slight     		  Severe   Slope/erodibility   	      0.95   	   Moderately suited   Slope   Wetness   Low strength	0.50
77A: Chippewa	   80   	  Slight 		  Slight   	       	Poorly suited Wetness Low strength	1.00

Table 9.—Hazard of Erosion and Suitability for Roads on Forestland—Continued

Map symbol and soil name	Pct. of map unit	Hazard of off-ro		Hazard of erosi		Suitability for roads (natural surface)		
	unit	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	
78A: Hornell	     80   	  Slight 	       	  Slight 	       	  Moderately suited   Wetness   Low strength	0.50	
78B: Hornell	     80   	  Slight 	       	    Moderate   Slope/erodibility   	      0.50	   Moderately suited   Wetness   Low strength   Slope	  0.50  0.50  0.50	
78C: Hornell	   80   	   Moderate   Slope/erodibility 	      0.50	    Severe   Slope/erodibility   	      0.95 	Moderately suited Slope Wetness Low strength	  0.50  0.50  0.50	
78D: Hornell	   80     	  Moderate   Slope/erodibility 	0.50	  Severe   Slope/erodibility 	    0.95 	Poorly suited Slope Wetness Low strength	  1.00  0.50  0.50	
78F: Hornell	     40   	  Very severe   Slope/erodibility 	      0.95 	  Severe   Slope/erodibility   	      0.95 	  Poorly suited   Slope   Wetness   Low strength	  1.00  0.50  0.50	
Hudson	   35     	   Very severe   Slope/erodibility   	    0.95 	  Severe   Slope/erodibility   	    0.95   	Poorly suited Slope Low strength Wetness	  1.00  0.50  0.50	
79B: Mongaup	   85   	  Slight 	       	  Moderate   Slope/erodibility 	    0.50 	Moderately suited Low strength Slope	  0.50  0.50	
79C: Mongaup	   85   	  Slight 	       	  Severe   Slope/erodibility	    0.95 	Moderately suited Slope Low strength	0.50	
79D: Mongaup	   85   	   Moderate   Slope/erodibility	    0.50 	  Severe   Slope/erodibility	    0.95 	Poorly suited Slope Low strength	  1.00  0.50	
79E: Mongaup	   85   	Moderate Slope/erodibility	0.50	  Severe   Slope/erodibility 	    0.95 	Poorly suited Slope Low strength	1.00	
79F: Mongaup	   85   	  Very severe   Slope/erodibility	    0.95 	  Severe   Slope/erodibility	    0.95 	Poorly suited   Slope   Low strength	  1.00  0.50	

Table 9.—Hazard of Erosion and Suitability for Roads on Forestland—Continued

Map symbol and soil name	Pct.   Hazard of off-road   of   or off-trail erosion   map   unit		Hazard of erosic		Suitability for roads (natural surface)		
	   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
80A: Fremont	     80 	    Slight 	       	    Slight 		Moderately suited   Wetness   Low strength	0.50
80B: Fremont	     80   	  Slight 	       	  Moderate   Slope/erodibility 	      0.50	  Moderately suited   Wetness   Low strength   Slope	  0.50  0.50  0.50
80C: Fremont	     80   	    Slight 	 	  Severe   Slope/erodibility	      0.95 	Moderately suited Slope Wetness Low strength	0.50
81B: Varysburg	     85   	  Slight 	     	  Moderate   Slope/erodibility	    0.50	  Moderately suited   Low strength   Slope	0.50
81C: Varysburg	     85 	  Slight 	     	  Severe   Slope/erodibility	      0.95	Moderately suited Slope Low strength	0.50
81D: Varysburg	     85 	  Moderate   Slope/erodibility	      0.50	  Severe   Slope/erodibility	      0.95	Poorly suited Slope Low strength	1.00
81E: Varysburg	     85 	  Moderate   Slope/erodibility 	    0.50	  Severe   Slope/erodibility	    0.95	Poorly suited Slope Low strength	1.00
82F: Rock outcrop	     50 	  Not rated 	     	  Not rated 		  Not rated 	
Manlius	     30 	    Very severe   Slope/erodibility 	      0.95	    Severe   Slope/erodibility 	      0.95	Poorly suited Slope Low strength	1.00
84B: Elko	     85   	  Slight 	       	  Moderate   Slope/erodibility 	    0.50 	Moderately suited Low strength Slope Wetness	0.50 0.50 0.50
84C: Elko	   85   	    Slight   	         	   Severe   Slope/erodibility 	    0.95   	Moderately suited   Slope   Low strength   Wetness	0.50

Table 9.—Hazard of Erosion and Suitability for Roads on Forestland—Continued

Map symbol and soil name	Pct. of map	or off-trail eros		Hazard of erosic		Suitability for r	
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
85B: Onoville	     85   	  Slight 	         	  Moderate   Slope/erodibility 	    0.50 	   Moderately suited   Low strength   Slope   Wetness	    0.50  0.50  0.50
85C: Onoville	     85   	  Slight   	         	  Severe   Slope/erodibility 	    0.95 	Moderately suited   Slope   Low strength   Wetness	  0.50  0.50  0.50
85D: Onoville	     85   	  Moderate   Slope/erodibility 	    0.50 	  Severe   Slope/erodibility 	    0.95 	Poorly suited Slope Low strength Wetness	  1.00  0.50  0.50
86B: Eldred	     85   	  Slight 	         	  Moderate   Slope/erodibility 	0.50	Moderately suited Low strength Slope Wetness	  0.50  0.50  0.50
86C: Eldred	     85   	  Slight 	         	  Severe   Slope/erodibility 	    0.95 	Moderately suited   Slope   Low strength   Wetness	  0.50  0.50  0.50
86D: Eldred	     85   	  Moderate   Slope/erodibility 	    0.50 	  Severe   Slope/erodibility 	    0.95 	Poorly suited Slope Low strength Wetness	  1.00  0.50  0.50
87B: Shongo	     80   	  Slight 	       	  Moderate   Slope/erodibility 	    0.50 	Poorly suited Wetness Low strength Slope	  1.00  0.50  0.50
87C: Shongo	     80   	  Slight 	         	  Severe   Slope/erodibility 	    0.95 	Poorly suited Wetness Slope Low strength	    1.00  0.50  0.50
88A: Ivory	     85   	  Slight   	         	  Slight 		Moderately suited Wetness Low strength	    0.50  0.50
88B: Ivory	   85     	  Slight   	       	  Moderate   Slope/erodibility   	0.50	Moderately suited Wetness Low strength Slope	  0.50  0.50  0.50

Table 9.—Hazard of Erosion and Suitability for Roads on Forestland—Continued

Map symbol and soil name	Pct. of map unit	Hazard of off-ro		Hazard of erosic		Suitability for r natural surfac	
	unit	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
88C: Ivory	     85     	  Moderate   Slope/erodibility 	      0.50 	  Severe   Slope/erodibility 	    0.95   	Moderately suited Slope Wetness Low strength	    0.50  0.50  0.50
88D: Ivory	   85     	  Moderate   Slope/erodibility 	    0.50 	  Severe   Slope/erodibility 	    0.95 	Poorly suited   Slope   Wetness   Low strength	  1.00  0.50  0.50
89B: Portville	   80     	  Slight   		  Moderate   Slope/erodibility 	    0.50 	Poorly suited Wetness Low strength Slope	  1.00  0.50  0.50
89C: Portville	   80     	  Slight   		  Severe   Slope/erodibility 	    0.95   	Poorly suited   Wetness   Slope   Low strength	  1.00  0.50  0.50
90A: Brinkerton	   85   	  Slight 	     	  Slight 	     	Poorly suited Wetness Low strength	1.00
90B: Brinkerton	     85     	  Slight   	         	  Moderate   Slope/erodibility 	    0.50 	   Poorly suited   Wetness   Low strength   Slope	  1.00  0.50  0.50
91A: Palms	   85     	  Slight 	         	  Slight 	       	Poorly suited Ponding Low strength Wetness	  1.00  1.00  1.00
92: Carlisle	   85     	  Slight   	       	  Slight   	       	Poorly suited   Ponding   Low strength   Wetness	  1.00  1.00  1.00
93: Saprists, inundated-	   85     	  Slight   	       	  Slight 	       	Poorly suited Ponding Low strength Wetness	  1.00  1.00  1.00
94B: Frewsburg	   80   	  Slight 	     	  Moderate   Slope/erodibility 	    0.50 	Moderately suited Wetness Low strength	    0.50  0.50

Table 9.—Hazard of Erosion and Suitability for Roads on Forestland—Continued

Map symbol and soil name	Pct. of map	Hazard of off-ro		Hazard of erosion on roads and train		Suitability for r	
	unit	Rating class and	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
94C: Frewsburg	     80   	  Slight   	         	  Severe   Slope/erodibility 	      0.95 	   Moderately suited   Slope   Wetness   Low strength	0.50  0.50  0.50
95B: Mandy	     85 	  Slight 	     	  Slight 	     	  Moderately suited   Slope	0.50
95C: Mandy	     85 	    Slight 	       	    Moderate   Slope/erodibility	      0.50	  Moderately suited   Slope	0.50
95D: Mandy	   85 	  Moderate   Slope/erodibility	    0.50	  Moderate   Slope/erodibility	    0.50	  Poorly suited   Slope	1.00
95E: Mandy	   85 	  Moderate   Slope/erodibility	    0.50	  Severe   Slope/erodibility	    0.95	  Poorly suited   Slope	1.00
95F: Mandy	     85 	  Severe   Slope/erodibility	    0.75	  Severe   Slope/erodibility	      0.95	  Poorly suited   Slope	1.00
96B: Carrollton	     80 	  Slight 	       	  Moderate   Slope/erodibility	      0.50	  Moderately suited   Low strength   Slope	0.50
96C: Carrollton	     80 	  Slight 	       	  Severe   Slope/erodibility	      0.95	  Moderately suited   Slope   Low strength	0.50
96D: Carrollton	     80 	  Moderate   Slope/erodibility	      0.50	  Severe   Slope/erodibility	      0.95	  Poorly suited   Slope   Low strength	1.00
96E: Carrollton	     80 	  Moderate   Slope/erodibility 	      0.50	  Severe   Slope/erodibility	      0.95	Poorly suited Slope Low strength	1.00
96F: Carrollton	     80 	    Severe   Slope/erodibility 	      0.75	    Severe   Slope/erodibility	      0.95	  Poorly suited   Slope   Low strength	1.00
97B: Kinzua	     85 	    Slight   	     	  Moderate   Slope/erodibility	      0.50	Moderately suited Low strength Slope	0.50
97C: Kinzua	     85 	    Slight 	     	  Severe   Slope/erodibility	      0.95	Moderately suited Slope Low strength	0.50

Table 9.-Hazard of Erosion and Suitability for Roads on Forestland-Continued

Map symbol and soil name	Pct. of map	Hazard of off-ro		Hazard of erosic		Suitability for r (natural surfac	
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
97D: Kinzua	     85 	  Moderate   Slope/erodibility 	      0.50 	  Severe   Slope/erodibility 	      0.95 	  Poorly suited   Slope   Low strength	1.00
97E: Kinzua	   85 	  Moderate   Slope/erodibility 	    0.50	  Severe   Slope/erodibility	    0.95 	Poorly suited   Slope   Low strength	1.00
97F: Kinzua	   85 	  Severe   Slope/erodibility	      0.75	  Severe   Slope/erodibility	      0.95	  Poorly suited   Slope   Low strength	1.00
98D: Kinzua	   85   	  Moderate   Slope/erodibility 	    0.50 	  Severe   Slope/erodibility 	    0.95 	  Poorly suited   Slope   Rock fragments   Low strength	1.00  1.00  0.50
98E: Kinzua	   85   	  Moderate   Slope/erodibility 	    0.50 	  Severe   Slope/erodibility 	    0.95 	   Poorly suited   Slope   Rock fragments   Low strength	1.00  1.00  0.50
99B: Buchanan	     85   	  Slight 	       	  Moderate   Slope/erodibility	    0.50 	   Moderately suited   Low strength   Slope   Wetness	  0.50  0.50  0.50
99C: Buchanan	     85 	  Slight 	       	  Severe   Slope/erodibility 	      0.95 	Moderately suited Slope Low strength Wetness	0.50
99D: Buchanan	     85   	  Moderate   Slope/erodibility 	      0.50 	  Severe   Slope/erodibility	    0.95 	Poorly suited Slope Low strength Wetness	  1.00  0.50  0.50
100: Udorthents	   85         	   Not rated   Not rated   Not rated   Not Rated	           	   Not rated   Not rated   Not rated   Not rated   Not rated   Not Rated		  Not rated   Not rated 	
101: Udorthents, refuse substratum	     90       	   Not rated   Not rated   Not rated   Not Rated	           	   Not rated   Not rated   Not rated   Not rated   Not rated   Not Rated		   Not rated   Not rated 	

Table 9.—Hazard of Erosion and Suitability for Roads on Forestland—Continued

Map symbol and soil name	Pct. of map	Hazard of off-roa or off-trail eros:		Hazard of erosic		Suitability for r (natural surfac	
	unit     	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and   limiting features	Value
102C: Mandy	     40 	  Slight		    Slight	     	  Moderately suited   Slope	      0.50
Rock outcrop	   35 	  Not rated 	     	  Not rated   	     	  Not rated   	
103C: Knapp Creek	       40 	  Slight		    Slight 	       	  Moderately suited   Slope   Sandiness	      0.50  0.50
Rock outcrop	   35 	  Not rated 	     	  Not rated   	   	  Not rated   	
104B: Flatiron	       80 	  Slight 		    Moderate   Slope/erodibility	        0.50	  Poorly suited   Rock fragments   Slope	      1.00  0.50
104C: Flatiron	     80 	  Slight 		  Severe   Slope/erodibility	      0.95	  Poorly suited   Rock fragments   Slope	    1.00  0.50
104D: Flatiron	     80 	  Moderate   Slope/erodibility	    0.50	  Severe   Slope/erodibility	      0.95	  Poorly suited   Slope   Rock fragments	    1.00  1.00
104E: Flatiron	     80 	  Moderate   Slope/erodibility	      0.50	  Severe   Slope/erodibility 	      0.95	  Poorly suited   Slope   Rock fragments	    1.00  1.00
108D: Hartleton	     85 	  Moderate   Slope/erodibility	      0.50	  Severe   Slope/erodibility 	      0.95	  Poorly suited   Slope   Low strength	    1.00  0.50
108E: Hartleton	     85   	  Moderate   Slope/erodibility	      0.50	  Severe   Slope/erodibility 	      0.95	  Poorly suited   Slope   Low strength	    1.00  0.50
108F: Hartleton	     85   	  Severe   Slope/erodibility	      0.75	  Severe   Slope/erodibility 	      0.95	  Poorly suited   Slope   Low strength	    1.00  0.50
131: Lamson	     85   	  Slight 	       	  Slight   	         	  Poorly suited   Wetness   Low strength	      1.00  0.50

Table 9.—Hazard of Erosion and Suitability for Roads on Forestland—Continued

Map symbol and soil name	Pct. of map	or off-trail eros		Hazard of erosic		Suitability for r	
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
132B: Wiscoy	   80   	  Slight 	         	  Moderate   Slope/erodibility 	    0.50 	Poorly suited Wetness Low strength Slope	1.00  0.50  0.50
132C: Wiscoy	     80   	  Slight 	         	  Severe   Slope/erodibility 	    0.95 	Poorly suited Wetness Slope Low strength	  1.00  0.50  0.50
135C: Hudson	     85   	  Moderate   Slope/erodibility 	    0.50 	  Severe   Slope/erodibility 	    0.95 	Moderately suited   Slope   Low strength   Wetness	  0.50  0.50  0.50
135D: Hudson	     85   	  Moderate   Slope/erodibility 	    0.50 	  Severe   Slope/erodibility 	    0.95 	Poorly suited Slope Low strength Wetness	  1.00  0.50  0.50
135E: Hudson	     85   	  Severe   Slope/erodibility 	    0.75 	  Severe   Slope/erodibility 	    0.95 	Poorly suited Slope Low strength Wetness	  1.00  0.50  0.50
140D: Dunkirk	     85 	  Moderate   Slope/erodibility	    0.50	  Severe   Slope/erodibility	    0.95	  Poorly suited   Slope   Low strength	1.00
140E: Dunkirk	     85   	  Severe   Slope/erodibility 	      0.75 	  Severe   Slope/erodibility 	      0.95 	  Poorly suited   Slope   Low strength	1.00
185C: Onoville	   85       	  Slight       	 	  Severe   Slope/erodibility   	    0.95     	Poorly suited Rock fragments Slope Low strength Wetness	1.00  0.50  0.50  0.50
185D: Onoville	   85       	  Moderate   Slope/erodibility 	    0.50   	  Severe   Slope/erodibility 	    0.95   	Poorly suited   Slope   Rock fragments   Low strength   Wetness	1.00  1.00  0.50  0.50
187B: Shongo	   80     	  Slight   		  Moderate   Slope/erodibility 	    0.50   	Poorly suited Rock fragments Wetness Low strength Slope	1.00  1.00  0.50  0.50

Table 9.—Hazard of Erosion and Suitability for Roads on Forestland—Continued

Map symbol and soil name	Pct. of map	Hazard of off-ros		Hazard of erosic		Suitability for r	
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
187C: Shongo	   80     	  Slight 	         	  Severe   Slope/erodibility 	    0.95   	Poorly suited Rock fragments Wetness Slope Low strength	1.00  1.00  0.50  0.50
188B: Cavode	   85   	Slight	         	  Moderate   Slope/erodibility   	    0.50 	   Moderately suited   Wetness   Low strength   Slope	0.50
188C: Cavode	   85   	  Moderate   Slope/erodibility	0.50	  Severe   Slope/erodibility 	0.95	   Moderately suited   Slope   Wetness   Low strength	0.50  0.50  0.50
188D: Cavode	   85   	  Moderate   Slope/erodibility 	    0.50 	  Severe   Slope/erodibility 	    0.95 	  Poorly suited   Slope   Wetness   Low strength	1.00  0.50  0.50
189B: Portville	     80     	  Slight 		  Moderate   Slope/erodibility   	      0.50   	Poorly suited   Rock fragments   Wetness   Low strength   Slope	1.00  1.00  0.50  0.50
189C: Portville	   80     	Slight	         	  Severe   Slope/erodibility 	    0.95   	Poorly suited   Rock fragments   Wetness   Slope   Low strength	1.00  1.00  0.50  0.50
195C: Mandy	   85   	  Slight 	     	  Slight 		  Poorly suited   Rock fragments   Slope	1.00
195D: Mandy	   85   	  Moderate   Slope/erodibility	    0.50	  Moderate   Slope/erodibility	    0.50 	Poorly suited   Slope   Rock fragments	1.00
195E: Mandy	   85 	  Severe   Slope/erodibility	    0.75 	  Severe   Slope/erodibility 	    0.95 	  Poorly suited   Slope   Rock fragments	1.00
199C: Buchanan	   85       	Slight	         	  Severe   Slope/erodibility 	    0.95   	Poorly suited Rock fragments Slope Low strength Wetness	1.00  0.50  0.50  0.50

Table 9.—Hazard of Erosion and Suitability for Roads on Forestland—Continued

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosa	Hazard of erosic		Suitability for r natural surfac		
	 	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
199D: Buchanan	     85       	  Moderate   Slope/erodibility   	    0.50   	  Severe   Slope/erodibility   	      0.95   	Poorly suited   Slope   Rock fragments   Low strength   Wetness	  1.00  1.00  0.50  0.50
289B: Ceres	     85   	  Slight 	       	  Moderate   Slope/erodibility	    0.50	  Moderately suited   Low strength   Slope	0.50
289C: Ceres	     85   	  Slight 	       	  Severe   Slope/erodibility	    0.95 	  Moderately suited   Slope   Low strength	0.50
289D: Ceres	     85   	  Moderate   Slope/erodibility	    0.50	  Severe   Slope/erodibility	    0.95	  Poorly suited   Slope   Low strength	1.00
289E: Ceres	     85   	  Moderate   Slope/erodibility	      0.50	  Severe   Slope/erodibility	      0.95	  Poorly suited   Slope   Low strength	1.00
289F: Ceres	     85   	  Severe   Slope/erodibility	      0.75	  Severe   Slope/erodibility	      0.95	  Poorly suited   Slope   Low strength	1.00
400: Wakeville	   80       	  Slight   		  Slight     	           	  Poorly suited   Flooding   Wetness   Sandiness   Low strength	1.00  0.50  0.50  0.50
496B: Gilpin	   85 	  Slight 	     	  Moderate   Slope/erodibility	    0.50	Moderately suited   Low strength   Slope	0.50
496C: Gilpin	     85   	  Slight 	       	  Severe   Slope/erodibility	      0.95	  Moderately suited   Slope   Low strength	0.50
496D: Gilpin	     85   	  Moderate   Slope/erodibility	0.50	  Severe   Slope/erodibility	      0.95	  Poorly suited   Slope   Low strength	1.00
496E: Gilpin	     85   	  Moderate   Slope/erodibility 	      0.50	  Severe   Slope/erodibility   	      0.95 	  Poorly suited   Slope   Low strength	1.00

Table 9.—Hazard of Erosion and Suitability for Roads on Forestland—Continued

Map symbol and soil name	  Pct.   of  map  unit	Hazard of off-rome or off-trail eros	Hazard of erosic		Suitability for roads (natural surface)		
	İ İ	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
496F: Gilpin	   85 	    Severe   Slope/erodibility	    0.75	  Severe   Slope/erodibility	    0.95	Poorly suited Slope Low strength	    1.00  0.50
497D: Rayne	   80 	  Moderate   Slope/erodibility	    0.50	  Severe   Slope/erodibility	    0.95	Poorly suited Slope Low strength	    1.00  0.50
497E: Rayne	     80 	  Moderate   Slope/erodibility 	      0.50	  Severe   Slope/erodibility	      0.95	  Poorly suited   Slope   Low strength	    1.00  0.50
497F: Rayne	     80 	  Severe   Slope/erodibility	      0.75	  Severe   Slope/erodibility	      0.95	Poorly suited Slope Low strength	    1.00  0.50
498E: Rayne	     80 	    Moderate   Slope/erodibility   	      0.50	  Severe   Slope/erodibility 	      0.95	Poorly suited Slope Rock fragments Low strength	    1.00  1.00  0.50
800: Holderton	     80   	  Slight   	       	  Slight   		  Poorly suited   Flooding   Wetness   Low strength	    1.00  0.50  0.50
PG: Pits, gravel	     85 	  Not rated 	     	  Not rated	     	  Not rated 	     
Ur: Urban land	     85 	    Not rated 	     	    Not rated 	     	    Not rated 	
W: Water	  100 	  Not rated 	   	  Not rated 	 	  Not rated 	   

## Table 10.-Forestland Planting

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	hand planting		Suitability for mechanical planting		Potential for seedling mortality	
	   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1: Udifluvents	     40 	    Moderately suited   Sandiness 	      0.50	  Moderately suited   Rock fragments   Sandiness	      0.50  0.50	Low	
Fluvaquents	   35   	  Moderately suited   Wetness 	    0.50 	  Poorly suited   Wetness   Rock fragments	  0.75  0.50	  High   Wetness 	1.00
2: Hamlin	85	  Well suited		  Well suited		Low	   
3: Tioga	     85	  Well suited		  Well suited		Low	
4: Teel	     85	    Well suited		    Well suited		Low	
5: Wayland	     85 	  Well suited 	     	  Well suited	     	High Wetness	1.00
6A: Wyalusing	     85 	    Well suited 	     	    Well suited 	     	  High   Wetness	1.00
7A: Philo	     85	    Well suited		    Well suited	   	    Low	
8: Middlebury	     85	    Well suited		    Well suited		Low	
9: Pawling	     85	    Well suited		    Well suited		Low	
10: Atkins	     85 	  Well suited		    Well suited 		High Wetness	1.00
11B: Ischua	     85 	  Well suited	     	  Moderately suited   Slope	      0.50	Low	
11C: Ischua	     85 	    Well suited 		  Moderately suited   Slope	      0.50	Low	
11D: Ischua	     85 	    Well suited 		  Poorly suited   Slope	      0.75	Low	

Table 10.-Forestland Planting-Continued

Map symbol and soil name	Pct. of map	of hand planting		Suitability for mechanical plant:		Potential for seedling mortali	
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
llE: Ischua	     85 	  Well suited	     	Unsuited Slope	      1.00	Low	
l1F: Ischua	     85 	  Moderately suited   Slope	      0.50	Unsuited Slope	      1.00	Low	
12B: Franklinville	   85 	  Well suited 	     	Moderately suited Slope Rock fragments	  0.50  0.50	Low	
12C: Franklinville	     85   	  Well suited 	       	Moderately suited Slope Rock fragments	    0.50  0.50	Low	
12D: Franklinville	     85   	  Well suited	       	Poorly suited Slope Rock fragments	    0.75  0.50	Low	
12E: Franklinville	     85   	  Well suited 	       	Unsuited   Slope   Rock fragments	    1.00  0.50	Low	
14B: Hornellsville	     85   	   Moderately suited   Stickiness; high   plasticity index	!	Moderately suited Slope Stickiness; high	0.50	High Wetness	1.00
14C: Hornellsville	     85     	  Moderately suited   Stickiness; high   plasticity index	        0.50   	plasticity index      Moderately suited     Slope     Stickiness; high     plasticity index	      0.50 	  High   Wetness	        1.00
15B: Willdin	     85 	    Well suited	     	Moderately suited Slope	0.50	Low	
L5C: Willdin	     85 	  Well suited 	     	  Moderately suited   Slope	      0.50	Low	
l5D: Willdin	     85 	  Well suited 	       	  Poorly suited   Slope	      0.75	Low	
16A: Almond	     80	    Well suited 	   	    Well suited 	     	  High   Wetness	1.00

Table 10.-Forestland Planting-Continued

Map symbol and soil name	Pct. of map	hand planting		Suitability fo mechanical plant		Potential for seedling mortality	
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
16B: Almond	     80 	    Well suited 	     	  Moderately suited   Slope	      0.50	     High   Wetness	1.00
16C: Almond	     80 	  Well suited 	     	  Moderately suited   Slope	      0.50	  High   Wetness	1.00
17B: Salamanca	     80 	  Well suited 	     	  Moderately suited   Slope	0.50	Low	
17C: Salamanca	     80 	  Well suited 		  Moderately suited   Slope	0.50	Low	
17D: Salamanca	     80 	  Well suited 		  Poorly suited   Slope	      0.75	Low	
17E: Salamanca	     80 	  Well suited 	     	  Unsuited   Slope	1.00	Low	
18A: Pope	     85	    Well suited		    Well suited		Low	
19A: Olean	     85 	  Moderately suited   Sandiness	0.50	  Moderately suited   Sandiness	0.50	Low	
19B: Olean	     85 	  Moderately suited   Sandiness	0.50	  Moderately suited   Sandiness	0.50	Low	
20A: Unadilla	     85	    Well suited		    Well suited		Low	
20B: Unadilla	     85	    Well suited		    Well suited		Low	
20C: Unadilla	     85 	  Well suited		  Moderately suited   Slope	0.50	Low	
20D: Unadilla	     85 	  Well suited		  Poorly suited   Slope	0.75	Low	
22A: Allard	     85	    Well suited		    Well suited		Low	
22B: Allard	     85	    Well suited		    Well suited		    Low	
25A: Chenango	     85 	    Well suited   	     	  Moderately suited   Rock fragments	      0.50	Low	

Table 10.-Forestland Planting-Continued

Map symbol and soil name	Pct. of	hand planting		Suitability fo mechanical plant		Potential for seedling mortality	
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
25B: Chenango	     85 	  Well suited 	       	   Moderately suited   Rock fragments   Slope	      0.50  0.50	Low	
25C: Chenango	     85 	  Well suited 	     	Moderately suited   Rock fragments   Slope	    0.50  0.50	Low	
25D: Chenango	     85 	  Well suited 	       	Poorly suited   Slope   Rock fragments	      0.75  0.50	Low	
25E: Chenango	     80 	  Well suited 	       	Unsuited Slope Rock fragments	    1.00  0.50	Low	
25F: Chenango	     80 	  Moderately suited   Slope	      0.50	Unsuited Slope Rock fragments	    1.00  0.50	Low	
26A: Chenango, fan	     80 	  Well suited 	     	  Moderately suited   Rock fragments	0.50	Low	     
26B: Chenango, fan	     80 	  Well suited 	       	  Moderately suited   Rock fragments   Slope	    0.50  0.50	Low	
27A: Castile	     85 	  Well suited		  Moderately suited   Rock fragments	0.50	  Low	
27B: Castile	     85   	  Well suited 	       	  Moderately suited   Rock fragments   Slope	    0.50  0.50	Low	
28A: Scio	     85	    Well suited		    Well suited		Low	
29A: Chenango	     85 	  Well suited 		  Moderately suited   Rock fragments	0.50	Low	
29B: Chenango	     85   	  Well suited 	       	  Moderately suited   Rock fragments   Slope	    0.50  0.50	Low	

Table 10.-Forestland Planting-Continued

Map symbol and soil name	Pct.   of  map  unit	hand planting		Suitability for mechanical planting		Potential for seedling mortality	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
29C: Chenango	     85 	  Well suited 	       	   Moderately suited   Rock fragments   Slope	    0.50  0.50	Low	
29D: Chenango	85	  Well suited	       	  Poorly suited   Slope   Rock fragments	    0.75  0.50	Low	
29E: Chenango	85	  Well suited 	       	Unsuited Slope Rock fragments	    1.00  0.50	Low	
31B: Collamer	     85	    Well suited 	     	    Well suited 	     	    Low	
31C: Collamer	85	  Well suited 	   	  Moderately suited   Slope	0.50	Low	
32A: Churchville	85	  Moderately suited   Stickiness; high   plasticity index	!	Moderately suited   Stickiness; high   plasticity index	0.50	  High   Wetness	1.00
32B: Churchville	   85 	  Moderately suited   Stickiness; high   plasticity index	!	  Moderately suited   Stickiness; high   plasticity index	0.50	  High   Wetness	1.00
33A: Wallington	     85 	  Well suited	     	  Well suited 	     	  High   Wetness	1.00
34: Getzville	80	  Well suited	     	  Well suited	     	  High   Wetness	1.00
35A: Rhinebeck	   80 	  Moderately suited   Stickiness; high   plasticity index	1	  Moderately suited   Stickiness; high   plasticity index		High Wetness	1.00
35B: Rhinebeck	80	  Moderately suited   Stickiness; high   plasticity index	!	  Moderately suited   Stickiness; high   plasticity index	:	   High   Wetness	1.00
35C: Rhinebeck	80	  Moderately suited   Stickiness; high   plasticity index	1	  Moderately suited   Slope     Stickiness; high	    0.50    0.50	  High   Wetness	1.00

Table 10.-Forestland Planting-Continued

Map symbol and soil name	Pct. of map	Suitability for hand planting	r	Suitability for mechanical plant.		Potential for seedling mortali	
	unit   	Rating class and limiting features	Value	Rating class and	Value	Rating class and limiting features	Value
36: Canadice	     75   	  Moderately suited   Stickiness; high   plasticity index	      0.50	  Moderately suited   Stickiness; high   plasticity index	:	  High   Wetness	    1.00
37A: Tonawanda	     80 	  Well suited	     	  Well suited 	       	  High   Wetness	1.00
37B: Tonawanda	     80 	  Well suited		  Well suited	     	  High   Wetness	1.00
38A: Niagara	     85 	  Well suited	     	  Well suited	     	  High   Wetness	1.00
38B: Niagara	     85 	  Well suited	     	  Well suited 	     	  High   Wetness	1.00
39A: Halsey	     85 	  Well suited	     	  Well suited	     	  High   Wetness	1.00
40A: Williamson	     85 	    Well suited 	     	    Well suited 	     	    Low 	
40B: Williamson	   85 	  Well suited 	   	  Well suited 	   	   Low 	
40C: Williamson	   85 	  Well suited 	     	  Moderately suited   Slope	    0.50	Low	
41A: Barcelona	   85 	  Well suited		  Well suited 	     	  High   Wetness	1.00
41B: Barcelona	     85 	  Well suited	     	  Well suited	     	  High   Wetness	1.00
42A: Elnora	     80	    Well suited		    Well suited	     	    Low	
42B: Elnora	     80 	  Well suited	     	  Moderately suited   Slope	      0.50	  Low	
43: Canandaigua, silt loam	       80 	    Well suited		    Well suited 		     High   Wetness	        1.00
44: Canandaigua, mucky silt loam	     85 	  Poorly suited   Wetness	      0.75	  -  Poorly suited   Wetness	      0.75	High Wetness	      1.00

Table 10.-Forestland Planting-Continued

Map symbol and soil name	Pct. of map	Suitability fo hand planting		Suitability fo mechanical plant		Potential for seedling mortali	
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
45: Canandaigua, acid substratum	       80	    Well suited 		    Well suited		High Wetness	1.00
46: Swormville	     85 	  Moderately suited   Sandiness	0.50	  Moderately suited   Sandiness	0.50	  High   Wetness	1.00
47A: Minoa	80	  Well suited		  Well suited 		  High   Wetness	1.00
48A: Colonie	80	    Well suited		    Well suited		    Low	
48B: Colonie	     80 	  Well suited		  Moderately suited   Slope	0.50	Low	
48C: Colonie	80	  Well suited 		  Moderately suited   Slope	0.50	Low	
49A: Red Hook	     85 	    Well suited 		  Well suited 	     	  High   Wetness	1.00
50A: Canaseraga	     85	    Well suited		    Well suited		    Low	
50B: Canaseraga	   85 	  Well suited		  Moderately suited   Slope	0.50	Low	
50C: Canaseraga	   85 	  Well suited 		  Moderately suited   Slope	0.50	Low	
51B: Chadakoin	     85 	    Well suited 		  Moderately suited   Slope	0.50	Low	
51C: Chadakoin	     85 	    Well suited 		    Moderately suited   Slope	      0.50	Low	   
51D: Chadakoin	     85	    Well suited 		    Poorly suited   Slope	      0.75	    Low 	
51E: Chadakoin	     85 	    Well suited 		    Unsuited   Slope	      1.00	Low	
51F: Chadakoin	     85 	    Moderately suited   Slope	      0.50	    Unsuited   Slope	      1.00	Low	

Table 10.-Forestland Planting-Continued

Map symbol and soil name	Pct. of map	hand planting		Suitability fo mechanical plant		Potential for seedling mortality	
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
52B: Valois	     85   	  Moderately suited   Sandiness	      0.50	  Moderately suited   Sandiness   Slope	0.50	Low	
52C: Valois	     85   	  Moderately suited   Sandiness	      0.50	  Moderately suited   Slope   Sandiness	    0.50  0.50	Low	
52D: Valois	     80 	  Moderately suited   Sandiness	      0.50	  Poorly suited   Slope   Sandiness	    0.75  0.50	Low	
52E: Valois	     80 	  Moderately suited   Sandiness	    0.50	Unsuited Slope Sandiness	    1.00  0.50	Low	
52F: Valois	     80 	  Moderately suited   Slope   Sandiness	    0.50  0.50	Unsuited Slope Sandiness	    1.00  0.50	Low	
53C: Valois	     30 	  Moderately suited   Sandiness	      0.50	  Moderately suited   Sandiness   Slope	    0.50  0.50	Low	
Volusia	   25 	  Well suited 	     	   Moderately suited   Slope   Rock fragments	  0.50  0.50	  High   Wetness 	1.00
Mardin	   20 	  Well suited   		  Moderately suited   Slope	0.50	  High   Wetness	1.00
55A: Darien	     85 	  Well suited 		  Well suited 		  High   Wetness	1.00
55B: Darien	     85 	  Well suited 		  Moderately suited   Slope	0.50	  High   Wetness	1.00
55C: Darien	     85 	  Well suited 		  Moderately suited   Slope	0.50	  High   Wetness	1.00
56B: Chautauqua	     80 	  Well suited 		  Moderately suited   Slope	0.50	Low	
56C: Chautauqua	     80 	  Well suited 		  Moderately suited   Slope	0.50	Low	
56D: Chautauqua	     80 	    Well suited   	       	  Poorly suited   Slope	    0.75	Low	

Table 10.-Forestland Planting-Continued

Map symbol and soil name	Pct. of map	hand plantin		Suitability fo mechanical plant		Potential for seedling mortali	
	unit   	Rating class and limiting features	Value	Rating class and	Value	Rating class and limiting features	Value
57A: Busti	80	  Well suited 		    Well suited 		  High   Wetness	1.00
57B: Busti	80	    Well suited 		  Moderately suited   Slope	0.50	  High   Wetness	1.00
57C: Busti	80	    Well suited 		    Moderately suited   Slope	0.50	  High   Wetness	1.00
58B: Rushford	80	    Well suited 		  Moderately suited   Slope	0.50	Low	
58C: Rushford	80	    Well suited 		  Moderately suited   Slope	0.50	Low	
59B: Yorkshire	85	    Well suited 		  Moderately suited   Slope	0.50	  High   Wetness	1.00
59C: Yorkshire	85	    Well suited 		    Moderately suited   Slope	0.50	     High   Wetness	1.00
59D: Yorkshire	85	    Well suited 		    Poorly suited   Slope	0.75	     High   Wetness	1.00
60A: Napoli	80	    Well suited 		    Well suited 		     High   Wetness	1.00
60B: Napoli	80	    Well suited 		    Moderately suited   Slope	0.50	     High   Wetness	1.00
60C: Napoli	80	    Well suited 		    Moderately suited   Slope	0.50	     High   Wetness	1.00
60D: Napoli	80	    Well suited 		    Poorly suited   Slope	0.75	     High   Wetness	1.00
61B: Schuyler	80	    Well suited 		    Moderately suited   Slope	0.50	    Low 	     
61C: Schuyler	80	    Well suited 		    Moderately suited   Slope	0.50	Low	     
61D: Schuyler	80	    Well suited 		    Poorly suited   Slope	0.75	    Low 	     

Table 10.-Forestland Planting-Continued

Map symbol and soil name	Pct. of map	Suitability for hand planting		Suitability fo mechanical plant		Potential for seedling mortali	
	unit	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
61E: Schuyler	     80 	    Well suited 	     	  Unsuited   Slope	1.00	Low	
61F: Schuyler	     80 	  Moderately suited   Slope	      0.50	  Unsuited   Slope	1.00	Low	
62B: Mardin	     85 	  Well suited 	     	  Moderately suited   Slope	0.50	  High   Wetness	1.00
62C: Mardin	     85 	  Well suited 	     	  Moderately suited   Slope	0.50	  High   Wetness	1.00
62D: Mardin	   85 	  Well suited 	     	  Poorly suited   Slope	    0.75	  High   Wetness	1.00
63B: Langford	     85 	  Well suited 		  Moderately suited   Slope	0.50	Low	
63C: Langford	     85 	  Well suited		  Moderately suited   Slope	0.50	Low	
63D: Langford	     85 	  Well suited 		  Poorly suited   Slope	0.75	  Low	
64C: Mardin	     85   	  Well suited 	       	  Moderately suited   Slope   Rock fragments	    0.50  0.50	  High   Wetness	1.00
66B: Volusia	     80 	  Well suited 	       	  Moderately suited   Rock fragments   Slope	    0.50  0.50	High Wetness	1.00
67A: Dalton	     80 	  Well suited 		  Well suited 		  High   Wetness	1.00
67B: Dalton	     80 	  Well suited 		  Moderately suited   Slope	0.50	  High   Wetness	1.00
68A: Volusia	     80 	  Well suited		  Moderately suited   Rock fragments	0.50	  High   Wetness	1.00
68B: Volusia	     80   	  Well suited   		  Moderately suited   Slope   Rock fragments	      0.50  0.50	  High   Wetness	1.00

Table 10.-Forestland Planting-Continued

Map symbol and soil name	Pct. of map	Suitability fo hand planting		Suitability fo mechanical plant		Potential for seedling mortality	
	unit	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
68C: Volusia	     80   	  Well suited 		  Moderately suited   Slope   Rock fragments	    0.50  0.50	High Wetness	1.00
69A: Erie	     80 	  Well suited		  Well suited 		  High   Wetness	1.00
69B: Erie	     80 	  Well suited		  Moderately suited   Slope	0.50	  High   Wetness	1.00
69C: Erie	     80 	  Well suited		  Moderately suited   Slope	0.50	  High   Wetness	1.00
71E: Mongaup	     85 	  Well suited 	     	Unsuited   Slope   Rock fragments	    1.00  0.50	Low	
71F: Mongaup	     85 	  Moderately suited   Slope 	      0.50	Unsuited Slope Rock fragments	      1.00  0.50	Low	
72B: Towerville	80	  Well suited 		  Moderately suited   Slope	0.50	Low	
72C: Towerville	80	  Well suited 	     	  Moderately suited   Slope	0.50	Low	
72D: Towerville	     80 	  Well suited 		  Poorly suited   Slope	      0.75	Low	
72E: Towerville	80	  Well suited 		  Unsuited   Slope	1.00	Low	
72F: Towerville	     80 	  Moderately suited   Slope	0.50	  Unsuited   Slope	1.00	Low	
73B: Gretor	     80 	  Well suited 	     	  Moderately suited   Slope   Rock fragments	    0.50  0.50	   High   Wetness	1.00
73C: Gretor	     80 	    Well suited 		   Moderately suited   Slope   Rock fragments	      0.50  0.50	  High   Wetness	1.00
74: Ashville	     80 	  Well suited		  Well suited 		  High   Wetness	1.00

Table 10.-Forestland Planting-Continued

Map symbol and soil name	Pct. of map unit	Suitability for hand planting		Suitability for mechanical plant.		Potential for seedling mortali	
	   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
75: Alden	     85 	  Poorly suited   Wetness	      0.75	  Poorly suited   Wetness	      0.75	  High   Wetness	1.00
76A: Orpark	   80 	  Well suited 	   	  Well suited 	   	  High   Wetness	1.00
76B: Orpark	     80 	  Well suited 	       	    Moderately suited   Slope 	      0.50	  High   Wetness	1.00
76C: Orpark	   80 	  Well suited 	     	  Moderately suited   Slope	    0.50	  High   Wetness	1.00
77A: Chippewa	80	  Well suited 	   	  Well suited 	     	  High   Wetness	1.00
78A: Hornell	     80   	  Moderately suited   Stickiness; high   plasticity index		  Moderately suited   Stickiness; high   plasticity index	      0.50	High Wetness	1.00
78B: Hornell	   80     	  Moderately suited   Stickiness; high   plasticity index		  Moderately suited   Slope     Stickiness; high   plasticity index	    0.50    0.50	  High   Wetness	1.00
78C: Hornell	     80   	  Moderately suited   Stickiness; high   plasticity index	:	  Moderately suited   Slope     Stickiness; high   plasticity index	:	   High   Wetness 	1.00
78D: Hornell	     80     	  Moderately suited   Stickiness; high   plasticity index		  Poorly suited   Slope     Stickiness; high   plasticity index	    0.75    0.50	  High   Wetness 	1.00
78F: Hornell	     40   	  Moderately suited   Slope   Stickiness; high   plasticity index	    0.50  0.50	Unsuited Slope Stickiness; high plasticity index	:	High Wetness	1.00
Hudson	   35     	Moderately suited Stickiness; high plasticity index Slope	  0.50    0.50	Unsuited Slope Stickiness; high plasticity index	  1.00    0.50	Low	
79B: Mongaup	     85 	    Well suited   	         		      0.50  0.50	Low	

Table 10.-Forestland Planting-Continued

Map symbol and soil name	Pct. of map unit	hand planting		Suitability fo mechanical plant	Potential for seedling mortali		
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
79C: Mongaup	     85 	  Well suited 	       	  Moderately suited   Slope   Rock fragments	    0.50  0.50	Low	
79D: Mongaup	     85   	  Well suited 	       	  Poorly suited   Slope   Rock fragments	      0.75  0.50	Low	
79E: Mongaup	     85   	  Well suited   		Unsuited Slope Rock fragments	    1.00  0.50	Low	
79F: Mongaup	   85   	  Moderately suited   Slope 	    0.50	  Unsuited   Slope   Rock fragments	    1.00  0.50	Low	
80A: Fremont	   80 	  Well suited 		  Well suited		  High   Wetness	1.00
80B: Fremont	     80 	  Well suited 	     	    Moderately suited   Slope	      0.50	  High   Wetness	1.00
80C: Fremont	     80 	  Well suited 		  Moderately suited   Slope	0.50	  High   Wetness	1.00
81B: Varysburg	     85 	  Well suited 		  Moderately suited   Slope	0.50	Low	
81C: Varysburg	     85 	  Well suited 		  Moderately suited   Slope	0.50	Low	
81D: Varysburg	     85 	  Well suited	     	  Poorly suited   Slope	0.75	Low	
81E: Varysburg	     85 	  Well suited 		  Unsuited   Slope	1.00	  Low	
82F: Rock outcrop	     50 	  Not rated 		  Not rated 		  Not rated 	
Manlius	     30 	  Moderately suited   Slope	      0.50	  Unsuited   Slope   Rock fragments	    1.00  0.50	Low	
84B: Elko	     85 	  Well suited 		  Moderately suited   Slope 	0.50	  Moderate   Soil reaction	0.50

Table 10.-Forestland Planting-Continued

Map symbol and soil name	Pct. of map unit	hand planting		Suitability fo mechanical plant		Potential for seedling mortality	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
84C: Elko	     85 	  Well suited 		  Moderately suited   Slope	0.50	  Moderate   Soil reaction	0.50
85B: Onoville	85	  Well suited 		  Moderately suited   Slope	0.50	  High   Wetness	1.00
85C: Onoville	85	  Well suited		  Moderately suited   Slope	0.50	  High   Wetness	1.00
85D: Onoville	     85 	  Well suited		  Poorly suited   Slope	0.75	  High   Wetness	1.00
86B: Eldred	85	  Well suited		  Moderately suited   Slope	0.50	Low	
86C: Eldred	85	  Well suited		  Moderately suited   Slope	0.50	  Low	
86D: Eldred	85	  Well suited 		  Poorly suited   Slope	0.75	Low	
87B: Shongo	80	  Well suited 		  Moderately suited   Slope	0.50	  High   Wetness	1.00
87C: Shongo	80	  Well suited 		  Moderately suited   Slope	0.50	  High   Wetness	1.00
88A: Ivory	85	  Well suited 		  Moderately suited   Rock fragments	0.50	  High   Wetness	1.00
88B: Ivory	     85 	  Well suited 		  Moderately suited   Slope   Rock fragments	    0.50  0.50	  High   Wetness	1.00
88C: Ivory	     85 	  Well suited 		  Moderately suited   Slope   Rock fragments	    0.50  0.50	  High   Wetness	1.00
88D: Ivory	     85 	  Well suited 	     	  Poorly suited   Slope   Rock fragments	    0.75  0.50	High Wetness	1.00
89B: Portville	     80 	    Well suited 		  Moderately suited   Slope	0.50	  High   Wetness	1.00
89C: Portville	     80 	  Well suited 		  Moderately suited   Slope 	0.50	  High   Wetness	1.00

Table 10.-Forestland Planting-Continued

Map symbol and soil name	Pct. of map	Suitability for hand planting		Suitability fo		Potential for seedling mortality	
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
90A: Brinkerton	   85 	  Well suited 		  Well suited 	     	  High   Wetness	1.00
90B: Brinkerton	     85 	  Well suited	     	  Moderately suited   Slope	0.50	  High   Wetness	1.00
91A: Palms	     85 	  Poorly suited   Wetness	      0.75	  Poorly suited   Wetness	      0.75	  High   Wetness	1.00
92: Carlisle	   85 	  Poorly suited   Wetness	0.75	  Poorly suited   Wetness	    0.75	  High   Wetness	1.00
93: Saprists, inundated-	   85 	  Poorly suited   Wetness	    0.75	  Poorly suited   Wetness	    0.75	  High   Wetness	1.00
94B: Frewsburg	   80 	  Well suited 		  Moderately suited   Slope	    0.50	  High   Wetness	1.00
94C: Frewsburg	   80 	  Well suited 		  Moderately suited   Slope	0.50	  High   Wetness	1.00
95B: Mandy	     85   	  Well suited 	       	  Moderately suited   Rock fragments   Slope	    0.50  0.50	Low	
95C: Mandy	     85   	  Well suited 	       	  Moderately suited   Rock fragments   Slope	    0.50  0.50	Low	
95D: Mandy	     85 	    Well suited   	     	  Poorly suited   Slope   Rock fragments	    0.75  0.50	Low	
95E: Mandy	     85 	    Well suited   	       	  Unsuited   Slope   Rock fragments	      1.00  0.50	Low	
95F: Mandy	     85 	    Moderately suited   Slope 	      0.50	  Unsuited   Slope   Rock fragments	    1.00  0.50	Low	
96B: Carrollton	     80 	  Well suited 		  Moderately suited   Slope	      0.50	Low	
96C: Carrollton	     80 	  Well suited   	     	  Moderately suited   Slope 	      0.50	Low	

Table 10.-Forestland Planting-Continued

Map symbol and soil name	Pct. of map	of hand planting		Suitability fo mechanical plant		Potential for seedling mortali	
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
96D: Carrollton	   80 	  Well suited 		  Poorly suited   Slope	0.75	Low	
96E: Carrollton	     80 	  Well suited 	     	  Unsuited   Slope	1.00	Low	
96F: Carrollton	   80 	  Moderately suited   Slope	0.50	  Unsuited   Slope	1.00	Low	
97B: Kinzua	     85 	  Well suited		  Moderately suited   Slope	    0.50	Low	
97C: Kinzua	     85 	  Well suited		  Moderately suited   Slope	0.50	Low	
97D: Kinzua	     85 	  Well suited 		  Poorly suited   Slope	      0.75	Low	
97E: Kinzua	     85 	    Well suited 	     	  Unsuited   Slope	      1.00	Low	
97F: Kinzua	     85 	  Moderately suited   Slope	0.50	  Unsuited   Slope	1.00	Low	
98D: Kinzua	     85 	  Moderately suited   Rock fragments	0.50	  Poorly suited   Slope   Rock fragments	    0.75  0.75	Low	     
98E: Kinzua	     85 	Moderately suited Rock fragments	      0.50	  Unsuited   Slope   Rock fragments	    1.00  0.75	Low	       
99B: Buchanan	     85 	  Well suited 	     	  Moderately suited   Slope	0.50	Low	
99C: Buchanan	     85 	    Well suited 	     	    Moderately suited   Slope	      0.50	Low	
99D: Buchanan	     85 	    Well suited 	     	  Poorly suited   Slope	      0.75	Low	
100: Udorthents	     85   	  Not rated   Not rated		  Not rated   Not rated   Rock fragments	        0.50	  Not rated   Not rated	

Table 10.-Forestland Planting-Continued

Map symbol and soil name	Pct. of map	Suitability for hand planting		Suitability fo mechanical plant		Potential for seedling mortali	
	unit	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
101: Udorthents, refuse substratum	       90 	  Not rated   Not rated	       	  Not rated   Not rated	       	  Not rated   Not rated	
102C: Mandy	     40 	  Well suited 	       	  Moderately suited   Rock fragments   Slope	    0.50  0.50	Low	
Rock outcrop	   35 	  Not rated 	     	  Not rated 	     	  Not rated 	
103C: Knapp Creek	     40 	  Moderately suited   Sandiness 	      0.50	  Moderately suited   Rock fragments   Sandiness   Slope	    0.50  0.50  0.50	   Moderate   Soil reaction 	      0.50
Rock outcrop	   35 	  Not rated   	     	  Not rated   		  Not rated   	
104B: Flatiron	     80 	  Moderately suited   Rock fragments	      0.50	  Poorly suited   Rock fragments   Slope	    0.75  0.50	Low	
104C: Flatiron	     80 	Moderately suited   Rock fragments	      0.50	  Poorly suited   Rock fragments   Slope	      0.75  0.50	Low	     
104D: Flatiron	     80 	   Moderately suited   Rock fragments	      0.50	  Poorly suited   Slope   Rock fragments	      0.75  0.75	Low	     
104E: Flatiron	     80 	   Moderately suited   Rock fragments	      0.50	Unsuited Slope Rock fragments	      1.00  0.75	Low	     
108D: Hartleton	     85 	  Well suited 	     	  Poorly suited   Slope   Rock fragments	      0.75  0.50	Low	     
108E: Hartleton	     85 	  Well suited 	     	  Unsuited   Slope   Rock fragments	      1.00  0.50	Low	     
108F: Hartleton	     85 	    Moderately suited   Slope	      0.50	  Unsuited   Slope   Rock fragments	      1.00  0.50	Low	       
131: Lamson	     85 	  Well suited 	       	  Well suited 		  High   Wetness	1.00

Table 10.-Forestland Planting-Continued

Map symbol and soil name	Pct. of	Suitability for hand planting		Suitability for mechanical plant:		Potential for seedling mortali	
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
132B: Wiscoy	80	  Well suited	     	  Moderately suited   Slope	      0.50	  High   Wetness	1.00
132C: Wiscoy	80	  Well suited	     	  Moderately suited   Slope	      0.50	  High   Wetness	1.00
135C: Hudson	     85   	   Moderately suited   Stickiness; high   plasticity index	!	  Moderately suited   Stickiness; high   plasticity index   Slope		Low	
135D: Hudson	     85   	   Moderately suited   Stickiness; high   plasticity index		  Poorly suited   Slope     Stickiness; high	!	Low	
135E: Hudson	       85     	   Moderately suited   Stickiness; high   plasticity index	!	plasticity index 	    1.00    0.50	Low	
140D: Dunkirk	     85 	  Well suited	     	Poorly suited Slope	      0.75	  Low 	
140E: Dunkirk	85	  Well suited	     	  Unsuited   Slope	      1.00	Low	
185C: Onoville	     85   	  Moderately suited   Rock fragments	      0.50	  Poorly suited   Rock fragments   Slope	      0.75  0.50	  High   Wetness	1.00
185D: Onoville	   85 	  Moderately suited   Rock fragments	    0.50	  Poorly suited   Slope   Rock fragments	    0.75  0.75	  High   Wetness	1.00
187B: Shongo	     80 	Moderately suited   Rock fragments	    0.50	Poorly suited Rock fragments Slope	    0.75  0.50	  High   Wetness	1.00
187C: Shongo	     80 	Moderately suited   Rock fragments	      0.50	Poorly suited Rock fragments Slope	    0.75  0.50	   High   Wetness	1.00
188B: Cavode	     85 	  Well suited 	       	  Moderately suited   Slope	      0.50	    High   Wetness	1.00

Table 10.-Forestland Planting-Continued

Map symbol and soil name	Pct. of map unit	Suitability fo hand planting		Suitability fo mechanical plant		Potential for seedling mortali	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
188C: Cavode	     85 	  Well suited	     	  Moderately suited   Slope	0.50	  High   Wetness	1.00
188D: Cavode	     85 	  Well suited	     	  Poorly suited   Slope	0.75	  High   Wetness	1.00
189B: Portville	     80 	  Moderately suited   Rock fragments	      0.50	  Poorly suited   Rock fragments   Slope	      0.75  0.50	High Wetness	1.00
189C: Portville	     80 	  Moderately suited   Rock fragments	      0.50	  Poorly suited   Rock fragments   Slope	    0.75  0.50	   High   Wetness	1.00
195C: Mandy	     85 	  Moderately suited   Rock fragments	      0.50	  Poorly suited   Rock fragments   Slope	    0.75  0.50	Low	
195D: Mandy	     85 	  Moderately suited   Rock fragments	      0.50	  Poorly suited   Slope   Rock fragments	      0.75  0.75	Low	
195E: Mandy	     85 	Moderately suited Rock fragments Slope	    0.50  0.50	Unsuited Slope Rock fragments	      1.00  0.75	Low	
199C: Buchanan	     85 	     Moderately suited   Rock fragments	      0.50	  Poorly suited   Rock fragments   Slope	      0.75  0.50	Low	
199D: Buchanan	     85 	Moderately suited Rock fragments	      0.50	  Poorly suited   Slope   Rock fragments	      0.75  0.75	Low	
289B: Ceres	   85 	  Well suited 	       	  Moderately suited   Slope   Rock fragments	    0.50  0.50	Low	
289C: Ceres	     85 	  Well suited 	     	  Moderately suited   Slope   Rock fragments	      0.50  0.50	Low	
289D: Ceres	     85 	    Well suited   	       	  Poorly suited   Slope   Rock fragments	      0.75  0.50	Low	
289E: Ceres	     85 	  Well suited 		Unsuited Slope Rock fragments	      1.00  0.50	Low	

Table 10.-Forestland Planting-Continued

Map symbol and soil name	Pct. of map unit	Suitability fo hand planting		Suitability fo mechanical plant		Potential for seedling mortali	
	 	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
289F: Ceres	     85 	  Moderately suited   Slope 	      0.50	Unsuited Slope Rock fragments	    1.00  0.50	Low	
400: Wakeville	     80 	  Moderately suited   Sandiness	0.50	  Moderately suited   Sandiness	0.50	  High   Wetness	1.00
496B: Gilpin	     85 	  Well suited 		  Moderately suited   Slope   Rock fragments	    0.50  0.50	Low	
496C: Gilpin	     85 	    Well suited   		  Moderately suited   Slope   Rock fragments	      0.50  0.50	Low	
496D: Gilpin	     85 	    Well suited   	     	  Poorly suited   Slope   Rock fragments	      0.75  0.50	Low	
496E: Gilpin	     85 	    Well suited   	     	  Unsuited   Slope   Rock fragments	      1.00  0.50	Low	
496F: Gilpin	     85 	    Moderately suited   Slope 	      0.50	Unsuited Slope Rock fragments	      1.00  0.50	Low	
497D: Rayne	     80 	    Well suited 		    Poorly suited   Slope	      0.75	Low	
497E: Rayne	     80 	  Well suited 		Unsuited Slope	1.00	Low	
497F: Rayne	     80 	  Moderately suited   Slope	0.50	Unsuited Slope	1.00	Low	
498E: Rayne	     80 	  Moderately suited   Rock fragments	      0.50	Unsuited   Slope   Rock fragments	    1.00  0.75	Low	
800: Holderton	     80 	  Well suited 		  Well suited 	       	  High   Wetness	1.00

Table 10.-Forestland Planting-Continued

Map symbol and soil name	Pct. of map unit	Suitability for hand planting		Suitability for     mechanical planting		Potential for seedling mortality	
	ļ	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
PG: Pits, gravel	     85 	  Not rated 	     	  Not rated 	     	  Not rated 	
Ur: Urban land	     85 	    Not rated 	     	  Not rated 	       	  Not rated 	
W: Water	    100   	  Not rated 	       	    Not rated   	       	  Not rated 	

Table 11.—Camp Areas, Picnic Areas, and Playgrounds

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas	   Playgrounds   		
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1.							
1: Udifluvents	   40       	Very limited   Flooding   Too sandy   Gravel content	  1.00  0.50  0.22	Somewhat limited   Too sandy   Flooding   Gravel content	  0.50  0.40  0.22	Very limited   Flooding   Gravel content   Too sandy   Large stones   content	1.00  1.00  0.50  0.01
Fluvaquents	35       	Very limited Depth to saturated zone Flooding Gravel content Too sandy	  1.00    1.00  0.27  0.02	Very limited   Depth to   saturated zone   Flooding   Gravel content   Too sandy	  1.00    0.40  0.27  0.02	Very limited Depth to saturated zone Flooding Gravel content Too sandy	  1.00  1.00  1.00  0.02
2: Hamlin	     85 	  Very limited   Flooding	1.00	  Not limited 		  Somewhat limited   Flooding	0.60
3: Tioga	     85 	  Very limited   Flooding	1.00	  Not limited 		  Somewhat limited   Flooding	0.60
4: Teel	   85     	Very limited Flooding Depth to saturated zone	  1.00    0.77	  Somewhat limited   Depth to   saturated zone	0.43	   Somewhat limited   Depth to   saturated zone   Flooding	0.77
5: Wayland	   85         	Very limited   Depth to   saturated zone   Flooding   Slow water   movement	1.00	Very limited   Depth to   saturated zone   Slow water   movement   Flooding	  1.00    0.96    0.40	Very limited   Depth to   saturated zone   Flooding   Slow water   movement	1.00
6A: Wyalusing	   85     	  Very limited   Depth to   saturated zone   Flooding	    1.00    1.00	  Very limited   Depth to   saturated zone   Flooding	  1.00    0.40	  Very limited   Depth to   saturated zone   Flooding	1.00
7A: Philo	   85       	   Very limited   Flooding   Depth to   saturated zone	  1.00    0.77	  Somewhat limited   Depth to   saturated zone	0.43	  Somewhat limited   Depth to   saturated zone   Flooding	0.77

Table 11.—Camp Areas, Picnic Areas, and Playgrounds—Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
8: Middlebury	   85     	  Very limited   Flooding     Depth to   saturated zone	1.00	  Somewhat limited   Depth to   saturated zone	0.43	  Somewhat limited   Depth to   saturated zone   Flooding	0.77
9: Pawling	   85       	  Very limited   Flooding     Depth to   saturated zone	1.00	  Somewhat limited   Depth to   saturated zone	0.43	  Somewhat limited   Depth to   saturated zone   Flooding	0.77
10: Atkins	   85   	  Very limited   Depth to   saturated zone   Flooding	1.00	  Very limited   Depth to   saturated zone   Flooding	1.00	  Very limited   Depth to   saturated zone   Flooding	1.00
11B: Ischua	   85             	Somewhat limited   Depth to   saturated zone   Slow water   movement   Gravel content	0.77	Somewhat limited   Slow water   movement   Depth to   saturated zone   Gravel content	0.49	Very limited   Slope   Gravel content   Depth to saturated zone   Depth to bedrock   Slow water   movement	1.00  1.00  0.77  0.65  0.49
11C: Ischua	   85               	Somewhat limited   Depth to   saturated zone   Slope   Slow water   movement   Gravel content	0.77	Somewhat limited   Slope	0.63	Very limited   Slope   Gravel content   Depth to   saturated zone   Depth to bedrock   Slow water   movement	1.00  1.00  0.77  0.65  0.49
11D: Ischua	   85             	Very limited   Slope   Depth to   saturated zone   Slow water   movement   Gravel content	  1.00  0.77    0.49    0.01	Very limited   Slope   Slow water   movement   Depth to   saturated zone   Gravel content	1.00	Very limited   Slope   Gravel content   Depth to   saturated zone   Depth to bedrock   Slow water   movement	1.00  1.00                                   

Table 11.—Camp Areas, Picnic Areas, and Playgrounds—Continued

and soil name	of map unit	Camp areas		Picnic areas		Playgrounds   	
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
11E: Ischua	     85	    Very limited	1.00	    Very limited   Slope	1.00	    Very limited   Slope	1.00
	   	Slope   Depth to   saturated zone	0.77	Slow water   movement	0.49	Gravel content	1.00
	       	Slow water movement Gravel content	0.49    0.01 	Depth to   saturated zone   Gravel content 	0.43    0.01 	Depth to saturated zone Depth to bedrock Slow water movement	0.77    0.65  0.49
11F: Ischua	     85	    Very limited		    Very limited	   	    Very limited	
	   	Slope Depth to saturated zone	1.00	Slope   Slow water   movement	1.00	Slope   Gravel content 	1.00
	j I	Slow water movement	0.49	Depth to saturated zone	0.43	Depth to saturated zone	0.77
	   	Gravel content	0.01	Gravel content	0.01	Depth to bedrock   Slow water   movement	0.65
12B: Franklinville	     85 	  Somewhat limited   Gravel content	0.01	  Somewhat limited   Gravel content	    0.01	  Very limited   Slope   Gravel content	1.00
12C: Franklinville	     85 	  Somewhat limited   Slope   Gravel content	0.63	  Somewhat limited   Slope   Gravel content	      0.63  0.01	  Very limited   Slope   Gravel content	1.00
12D: Franklinville	     85 	  Very limited   Slope   Gravel content	    1.00  0.01	  Very limited   Slope   Gravel content	    1.00  0.01	  Very limited   Slope   Gravel content	  1.00  1.00
12E: Franklinville	     85 	Very limited Slope Gravel content	    1.00  0.01	  Very limited   Slope   Gravel content	      1.00  0.01	Very limited Slope Gravel content	1.00
14B: Hornellsville	     85 	    Very limited   Depth to	1.00	    Very limited   Depth to	      0.99	    Very limited   Depth to	1.00
	 	saturated zone	0.99	saturated zone	0.99	saturated zone	1.00
	   	movement   		movement   		   Slow water   movement	0.99
	 					Depth to bedrock	0.16
14C: Hornellsville	   85 	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	    0.99	  Very limited   Depth to	1.00
	   	saturated zone   Slow water   movement	0.99	saturated zone   Slow water   movement	0.99	saturated zone Slope	1.00
	   	Slope	0.63	Slope	0.63	   Slow water   movement	0.99

Table 11.—Camp Areas, Picnic Areas, and Playgrounds—Continued

Map symbol and soil name	Pct. of	Camp areas		Picnic areas		Playgrounds	
	map unit			 		 	
	 	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
15B:							
Willdin	85   	Somewhat limited   Slow water   movement	0.99	Somewhat limited   Slow water   movement	0.99	Very limited   Slope 	1.00
	į	Depth to saturated zone	0.95	Depth to saturated zone	0.68	Gravel content	1.00
	   	Gravel content	0.04	Gravel content	0.04	Slow water	0.99
	   	 		 		movement Depth to saturated zone	0.95
	     					Large stones content	0.01
15C: Willdin	     85	    Somewhat limited		    Somewhat limited		    Very limited	
wiiidin	<b>65</b>   	Slow water   movement	0.99	Slow water   movement	0.99	Slope	1.00
		Depth to saturated zone	0.95	Depth to saturated zone	0.68	Gravel content	1.00
	l I	Slope	0.63	Slope	0.63	Slow water   movement	0.99
	   	Gravel content	0.04	Gravel content	0.04	Depth to saturated zone	0.95
	   					Large stones content	0.01
15D: Willdin	     85	   		 		 	
WIIIdIn	65	Very limited   Slope	1.00	Very limited   Slope	1.00	Very limited   Slope	1.00
	i I	Slow water   movement	0.99	Slow water   movement	0.99	Gravel content	1.00
	j I	Depth to saturated zone	0.95	Depth to saturated zone	0.68	Slow water movement	0.99
	į į	Gravel content	0.04	Gravel content	0.04	Depth to saturated zone	0.95
	j J					Large stones content	0.01
16A:				 			
Almond	80 	Very limited   Depth to	1.00	Very limited   Depth to   saturated zone	0.99	Very limited   Depth to   saturated zone	1.00
	   	saturated zone   Slow water   movement	0.99	Saturated zone   Slow water   movement	0.99	saturated zone   Slow water   movement	0.99
	   	movement		movement		Gravel content	0.20
16B: Almond		    Vorm limited		    Vorm limited		    Vont limited	
AIMOIIQ	80 	Very limited   Depth to	1.00	Very limited   Depth to	0.99	Very limited   Depth to   saturated zone	1.00
	!   	saturated zone   Slow water   movement	0.99	saturated zone   Slow water   movement	0.99	saturated zone   Slope	1.00
	   	movement		movement		   Slow water   movement	0.99
	į					Gravel content	0.20

Table 11.—Camp Areas, Picnic Areas, and Playgrounds—Continued

Map symbol and soil name	Pct. of map unit	_		Picnic areas		Playgrounds   	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
16C: Almond	   80           	   Very limited   Depth to   saturated zone   Slow water   movement   Slope	1.00	   Very limited   Depth to   saturated zone   Slow water   movement   Slope	0.99	Very limited   Depth to   saturated zone   Slope   Slow water   movement   Gravel content	1.00
17B: Salamanca	80	  Somewhat limited   Depth to   saturated zone	0.77	  Somewhat limited   Slow water   movement	0.60	  Somewhat limited   Slope	0.88
		Slow water   movement	0.60	Depth to saturated zone	0.43	Depth to   saturated zone   Slow water   movement   Gravel content	0.77
17C: Salamanca	80	Somewhat limited   Depth to   saturated zone	0.77	Somewhat limited   Slope	0.63	  Very limited   Slope	1.00
		Slope   Slow water   movement	0.63	Slow water   movement   Depth to   saturated zone	0.60	Depth to   saturated zone   Slow water   movement   Gravel content	0.77    0.60 
17D: Salamanca	   80   81   1   1   1	   Very limited   Slope   Depth to   saturated zone   Slow water   movement	    1.00  0.77    0.60	   Very limited   Slope   Slow water   movement   Depth to   saturated zone	1.00	Very limited   Slope   Depth to   saturated zone   Slow water   movement   Gravel content	  1.00  0.77    0.60 
17E: Salamanca	   80   80   	   Very limited   Slope   Depth to   saturated zone   Slow water   movement	1.00	   Very limited   Slope   Slow water   movement   Depth to   saturated zone	1.00	Very limited   Slope   Depth to   saturated zone   Slow water   movement   Gravel content	1.00  0.77    0.60 
18A: Pope	     85 	  Very limited   Flooding	1.00	  Not limited 		  Somewhat limited   Flooding	0.60
19A: Olean	   85   	  Somewhat limited   Depth to   saturated zone	0.77	  Somewhat limited   Depth to   saturated zone	0.43	  Somewhat limited   Depth to   saturated zone	0.77
19B: Olean	     85   	  Somewhat limited   Depth to   saturated zone	0.77	  Somewhat limited   Depth to   saturated zone	0.43	  Somewhat limited   Depth to   saturated zone   Slope	0.77

Table 11.—Camp Areas, Picnic Areas, and Playgrounds—Continued

Map symbol and soil name	Pct. of map unit	 		Picnic areas		Playgrounds	
	 	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
20A: Unadilla	     85	    Not limited 		    Not limited 		    Not limited 	     
20B: Unadilla	   85 	  Not limited 	   	  Not limited 	   	  Somewhat limited   Slope	0.50
20C: Unadilla	     85 	    Somewhat limited   Slope	      0.63	    Somewhat limited   Slope	      0.63	  Very limited   Slope	1.00
20D: Unadilla	   85 	  Very limited   Slope	1.00	  Very limited   Slope	1.00	  Very limited   Slope	1.00
22A: Allard	     85	    Not limited		    Not limited 		  Not limited	
22B: Allard	   85 	  Not limited 		  Not limited 	   	  Somewhat limited   Slope	0.50
25A: Chenango	     85 	  Somewhat limited   Gravel content	      0.06	  Somewhat limited   Gravel content	      0.06	  Very limited   Gravel content	1.00
25B: Chenango	     85   	  Somewhat limited   Gravel content	    0.06	  Somewhat limited   Gravel content	    0.06	  Very limited   Slope   Gravel content	1.00
25C: Chenango	     85   	  Somewhat limited   Slope   Gravel content	    0.63  0.06	  Somewhat limited   Slope   Gravel content	    0.63  0.06	  Very limited   Slope   Gravel content	1.00
25D: Chenango	     85   	  Very limited   Slope   Gravel content	    1.00  0.06	  Very limited   Slope   Gravel content	    1.00  0.06	  Very limited   Slope   Gravel content	1.00
25E: Chenango	     80 	  Very limited   Slope   Gravel content	    1.00  0.06	  Very limited   Slope   Gravel content	    1.00  0.06	  Very limited   Slope   Gravel content	1.00
25F: Chenango	     80 	  Very limited   Slope   Gravel content	    1.00  0.06	  Very limited   Slope   Gravel content	    1.00  0.06	  Very limited   Slope   Gravel content	1.00
26A: Chenango, fan	     80 	  Very limited   Flooding   Gravel content	    1.00  0.27	  Somewhat limited   Gravel content	      0.27	  Very limited   Gravel content	1.00
26B: Chenango, fan	     80   	  Very limited   Flooding   Gravel content	      1.00  0.27	  Somewhat limited   Gravel content 	      0.27 	  Very limited   Gravel content   Slope	1.00

Table 11.—Camp Areas, Picnic Areas, and Playgrounds—Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
	ļ	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
27A: Castile	     85 	  Somewhat limited   Depth to   saturated zone	0.77	  Somewhat limited   Gravel content	0.68	  Very limited   Gravel content	1.00
		Gravel content	0.68	Depth to saturated zone	0.43	Depth to saturated zone	0.77
27B: Castile	85	  Somewhat limited   Depth to	0.77	  Somewhat limited   Gravel content	0.68	  Very limited   Gravel content	1.00
		saturated zone   Gravel content 	0.68	   Depth to   saturated zone	0.43	   Slope 	1.00
						Depth to saturated zone	0.77
28A: Scio	   85   	  Somewhat limited   Depth to   saturated zone	0.77	Somewhat limited   Depth to   saturated zone	    0.43	  Somewhat limited   Depth to   saturated zone	0.77
29A: Chenango	   85 	  Somewhat limited   Gravel content	0.08	  Somewhat limited   Gravel content	0.08	  Very limited   Gravel content	1.00
29B: Chenango	   85   	  Somewhat limited   Gravel content	0.08	  Somewhat limited   Gravel content	0.08	  Very limited   Gravel content   Slope	1.00
29C: Chenango	     85   	  Somewhat limited   Slope   Gravel content	0.63	  Somewhat limited   Slope   Gravel content	    0.63  0.08	  Very limited   Slope   Gravel content	1.00
29D: Chenango	     85 	  Very limited   Slope   Gravel content	1.00	  Very limited   Slope   Gravel content	1.00	  Very limited   Slope   Gravel content	  1.00  1.00
29E: Chenango	   85   	  Very limited   Slope   Gravel content	1.00	  Very limited   Slope   Gravel content	1.00	  Very limited   Slope   Gravel content	  1.00  1.00
31B: Collamer	   85 	  Somewhat limited   Depth to   saturated zone	0.77	  Somewhat limited   Slow water   movement	0.49	  Somewhat limited   Depth to   saturated zone	0.77
	     	Slow water   movement 	0.49	Depth to saturated zone	0.43	Slope Slow water movement	0.50    0.49
31C: Collamer	     85 	   Somewhat limited   Depth to	0.77	    Somewhat limited   Slope	0.63	    Very limited   Slope	1.00
		saturated zone Slope	0.63	   Slow water   movement	0.49	Depth to saturated zone	0.77
		Slow water   movement	0.49	Depth to saturated zone	0.43	Slow water   movement	0.49

Table 11.—Camp Areas, Picnic Areas, and Playgrounds—Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
32A: Churchville	     85     	Very limited   Depth to   saturated zone   Slow water   movement	      1.00    0.99	Very limited   Depth to   saturated zone   Slow water   movement	      0.99    0.99	Very limited   Depth to   saturated zone   Slow water   movement	    1.00    0.99
32B: Churchville	   85         	  Very limited   Depth to   saturated zone   Slow water   movement	  1.00    0.99	  Very limited   Depth to   saturated zone   Slow water   movement	  0.99    0.99	   Very limited   Depth to   saturated zone   Slow water   movement   Slope	  1.00    0.99    0.50
33A: Wallington	   85       	  Very limited   Depth to   saturated zone   Slow water   movement	  1.00    0.96	  Very limited   Depth to   saturated zone   Slow water   movement	  1.00    0.96	Very limited   Depth to   saturated zone   Slow water   movement	  1.00    0.96
34: Getzville	   80 	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	1.00
35A: Rhinebeck	     80     	Very limited   Depth to   saturated zone   Slow water   movement	      1.00    0.96	Very limited Depth to saturated zone Slow water movement	      0.99    0.96	Very limited   Depth to   saturated zone   Slow water   movement	    1.00    0.96
35B: Rhinebeck	   80     	  Very limited   Depth to   saturated zone   Slow water   movement	  1.00    0.96	  Very limited   Depth to   saturated zone   Slow water   movement	    0.99    0.96	   Very limited   Depth to   saturated zone   Slow water   movement   Slope	  1.00    0.96 
35C: Rhinebeck	   80         	Very limited Depth to saturated zone Slow water movement Slope	  1.00    0.96    0.63	Very limited Depth to saturated zone Slow water movement Slope	0.99	Very limited Depth to saturated zone Slope Slow water movement	   1.00   1.00   0.96
36: Canadice	   75       	   Very limited   Depth to   saturated zone   Slow water   movement	    1.00    1.00	   Very limited   Depth to   saturated zone   Slow water   movement	    1.00    1.00	   Very limited   Depth to   saturated zone   Slow water   movement	1.00

Table 11.—Camp Areas, Picnic Areas, and Playgrounds—Continued

Map symbol and soil name	Pct. of map unit	<u> </u>		Picnic areas		   Playgrounds   	
	ļ	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
37A: Tonawanda	     80     	  Very limited   Depth to   saturated zone   Slow water   movement	    1.00    0.49	  Very limited   Depth to   saturated zone   Slow water   movement	      0.99    0.49	   Very limited   Depth to   saturated zone   Slow water   movement	1.00
37B: Tonawanda	   80           	   Very limited   Depth to   saturated zone   Slow water   movement	    1.00    0.49	   Very limited   Depth to   saturated zone   Slow water   movement	    0.99    0.49 	Very limited   Depth to   saturated zone   Slope   Slow water   movement	  1.00    0.50    0.49
38A: Niagara	   85       	   Very limited   Depth to   saturated zone   Slow water   movement	  1.00    0.49	Very limited   Depth to   saturated zone   Slow water   movement	  0.99    0.49	Very limited   Depth to   saturated zone   Slow water   movement	1.00
38B: Niagara	   85           	  Very limited   Depth to   saturated zone   Slow water   movement	  1.00    0.49 	Very limited   Depth to   saturated zone   Slow water   movement	    0.99    0.49	Very limited   Depth to   saturated zone   Slope   Slow water   movement	  1.00    0.50    0.49
39A: Halsey	   85         	  Very limited   Depth to   saturated zone   Ponding	1.00	  Very limited   Ponding   Depth to   saturated zone	1.00	   Very limited   Depth to   saturated zone   Ponding   Gravel content	  1.00    1.00    0.22
40A: Williamson	   85       	Somewhat limited   Slow water   movement   Depth to   saturated zone	  0.99    0.90	Somewhat limited   Slow water   movement   Depth to   saturated zone	    0.99    0.60	Somewhat limited   Slow water   movement   Depth to   saturated zone	0.99
40B: Williamson	   85         	  Somewhat limited   Slow water   movement   Depth to   saturated zone	0.99	  Somewhat limited   Slow water   movement   Depth to   saturated zone	0.99	Somewhat limited   Slow water   movement   Depth to   saturated zone   Slope	0.99

Table 11.—Camp Areas, Picnic Areas, and Playgrounds—Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
	j 	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
40C: Williamson	     85 	Somewhat limited   Slow water   movement   Double   Dou	      0.99	  Somewhat limited   Slow water   movement	0.99	   Very limited   Slope	1.00
	       	Depth to   saturated zone   Slope 	0.90    0.63 	Slope     Depth to   saturated zone	0.63    0.60 	Slow water   movement   Depth to   saturated zone	0.99
41A:	İ						İ
Barcelona	85       	Very limited   Depth to   saturated zone   Slow water   movement	  1.00    0.26	Very limited   Depth to   saturated zone   Slow water   movement	  0.99    0.26	Very limited   Depth to   saturated zone   Slow water   movement	1.00
	į		ļ		ļ		İ
41B: Barcelona	   85   	  Very limited   Depth to   saturated zone	    1.00	  Very limited   Depth to   saturated zone	    0.99	  Very limited   Depth to   saturated zone	1.00
	j I	Slow water movement	0.26	Slow water movement	0.26	Slope	0.50
						Slow water   movement	0.26
42A: Elnora	     80   	  Somewhat limited   Depth to   saturated zone	      0.77 	  Somewhat limited   Depth to   saturated zone	      0.43	  Somewhat limited   Depth to   saturated zone	0.77
42B: Elnora	   80 	  Somewhat limited   Depth to   saturated zone	    0.77	  Somewhat limited   Depth to   saturated zone	    0.43	  Very limited   Slope	1.00
	ļ ļ				   	Depth to saturated zone	0.77
43: Canandaigua, silt							
loam	80 	Very limited   Depth to   saturated zone	1.00	Very limited   Ponding	1.00	Very limited   Depth to   saturated zone	1.00
	   	Saturated 2011e   Ponding 	1.00	Depth to saturated zone	1.00	Saturated Zone   Ponding 	1.00
	İ	Slow water movement	0.26	Slow water movement	0.26	Slow water movement	0.26
44: Canandaigua, mucky silt loam	       85	      Very limited	     	      Very limited		      Very limited	
5110 10am1		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	 	Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
	 	Slow water   movement	0.26	Slow water   movement	0.26	Slow water   movement	0.26

Table 11.—Camp Areas, Picnic Areas, and Playgrounds—Continued

Map symbol and soil name	  Pct.   of  map  unit	Camp areas		Picnic areas		Playgrounds   	
	ļ 	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
45: Canandaigua, acid substratum	       80	      Very limited		      Very limited		      Very limited	
Substitution	   	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	   	Ponding     Slow water	1.00    0.26	Depth to   saturated zone   Slow water	1.00    0.26	Ponding     Slow water	1.00
	i I	movement		movement		movement	
46: Swormville	   85 	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	    0.99 	  Very limited   Depth to   saturated zone	1.00
	   	Slow water movement	0.49	Slow water   movement 	0.49	Slow water   movement 	0.49
47A: Minoa	   80 	  Very limited   Depth to   saturated zone	    1.00 	  Very limited   Depth to   saturated zone	    0.99 	  Very limited   Depth to   saturated zone	1.00
48A: Colonie	     80	  Not limited		  Not limited		    Not limited	
48B: Colonie	   80 	  Not limited 		  Not limited 		  Very limited   Slope	1.00
48C: Colonie	   80 	  Somewhat limited   Slope	0.63	  Somewhat limited   Slope	0.63	  Very limited   Slope	1.00
49A: Red Hook	   85   	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	    0.99 	  Very limited   Depth to   saturated zone   Gravel content	1.00
50A: Canaseraga	     85 	Slow water	0.99	  Somewhat limited   Slow water	0.99	  Somewhat limited   Slow water	0.99
	     	movement Depth to saturated zone	  0.98 	movement Depth to saturated zone	  0.75 	movement Depth to saturated zone	0.98
50B: Canaseraga	     85 	  Somewhat limited   Slow water   movement	    0.99	  Somewhat limited   Slow water   movement	    0.99	  Very limited   Slope	1.00
	     	Depth to saturated zone	  0.98   	Depth to   saturated zone	0.75	Slow water   movement   Depth to	0.99
	 					saturated zone	

Table 11.—Camp Areas, Picnic Areas, and Playgrounds—Continued

Map symbol and soil name	Pct. of map unit	<u> </u>		Picnic areas		   Playgrounds   	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
50C: Canaseraga	   85         	Somewhat limited   Slow water   movement   Depth to   saturated zone   Slope	0.99	Somewhat limited   Slow water   movement   Depth to   saturated zone   Slope	0.99	Very limited   Slope     Slow water   movement   Depth to   saturated zone	    1.00    0.99    0.98
51B: Chadakoin	     85   	    Not limited 	       	    Not limited 	       	  Very limited   Slope   Gravel content	    1.00  0.99
51C: Chadakoin	     85   	  Somewhat limited   Slope	    0.63	  Somewhat limited   Slope	    0.63	  Very limited   Slope   Gravel content	1.00
51D: Chadakoin	     85 	  Very limited   Slope	      1.00	  Very limited   Slope	      1.00	  Very limited   Slope   Gravel content	    1.00  0.99
51E: Chadakoin	     85   	  Very limited   Slope	    1.00	  Very limited   Slope	      1.00	  Very limited   Slope   Gravel content	1.00
51F: Chadakoin	     85   	  Very limited   Slope 	    1.00	  Very limited   Slope	    1.00	  Very limited   Slope   Gravel content	1.00
52B: Valois	     85   	  Somewhat limited   Gravel content	    0.06	  Somewhat limited   Gravel content	    0.06	  Very limited   Slope   Gravel content	1.00
52C: Valois	   85 	  Somewhat limited   Slope   Gravel content	    0.63  0.06	  Somewhat limited   Slope   Gravel content	    0.63  0.06	  Very limited   Slope   Gravel content	1.00
52D: Valois	   80   	  Very limited   Slope   Gravel content	    1.00  0.06	  Very limited   Slope   Gravel content	    1.00  0.06	  Very limited   Slope   Gravel content	1.00
52E: Valois	     80 	  Very limited   Slope   Gravel content	    1.00  0.06	  Very limited   Slope   Gravel content	    1.00  0.06	  Very limited   Slope   Gravel content	1.00
52F: Valois	     80   	  Very limited   Slope   Gravel content	    1.00  0.06	  Very limited   Slope   Gravel content	    1.00  0.06	  Very limited   Slope   Gravel content	    1.00  1.00

Table 11.—Camp Areas, Picnic Areas, and Playgrounds—Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
	.  .	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
53C:							
Valois	30	Somewhat limited		Somewhat limited		Very limited	
		Gravel content	0.06 0.04	Gravel content	0.06  0.04	Slope   Gravel content	1.00  1.00
Volusia	25	  Very limited		  Very limited		  Very limited	
		Depth to	1.00	Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone		saturated zone	
		Slow water movement	0.99	Slow water   movement	0.99	Slope 	1.00
	İ	Slope	0.04	Slope	0.04	Gravel content	1.00
		Gravel content	0.01	Gravel content	0.01	Slow water   movement	0.99
Mardin	20	  Very limited		  Somewhat limited		  Very limited	
		Depth to	1.00	Slow water	0.99	Depth to	1.00
		saturated zone		movement		saturated zone	
		Slow water   movement	0.99	Depth to saturated zone	0.96	Slope	1.00
		Slope	0.04	Slope	0.04	Gravel content Slow water movement	0.99
			İ				İ
55A:	0.5			 		 	
Darien	85	Very limited   Depth to	1.00	Very limited   Depth to	  0.99	Very limited   Depth to	1.00
		saturated zone		saturated zone		saturated zone	
	j I	Slow water movement	0.96	Slow water movement	0.96	Slow water movement	0.96
55B:		l		l		l I	
Darien	85	  Very limited	l	  Very limited		  Very limited	l
		Depth to	1.00	Depth to	0.99	Depth to	1.00
		saturated zone		saturated zone		saturated zone	
		Slow water   movement	0.96	Slow water   movement	0.96	Slow water   movement	0.96
						Slope	0.88
55C:		 					
Darien	85	Very limited		Very limited		Very limited	
	-	Depth to saturated zone	1.00	Depth to saturated zone	0.99	Depth to saturated zone	1.00
		Slow water	0.96	Slow water	0.96	Slope	1.00
	İ	movement		movement			
		Slope 	0.63	Slope	0.63	Slow water   movement	0.96
56B:		 		 		 	
Chautauqua	80	  Somewhat limited	ì	  Somewhat limited		  Very limited	i
<del>-</del>		Depth to	0.77	Depth to	0.43	Slope	1.00
		saturated zone Slow water	0.26	saturated zone Slow water	0.26	Donth to	0.77
		Slow water   movement	0.20	Slow water   movement	U.26	Depth to saturated zone	0.77
			į		İ	Slow water	0.26
						movement	
	1				1	Gravel content	0.22

Table 11.—Camp Areas, Picnic Areas, and Playgrounds—Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
	ļ	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
56C: Chautauqua	     80 	Somewhat limited Depth to	0.77	  Somewhat limited   Slope	0.63	  Very limited   Slope	1.00
		saturated zone   Slope 	0.63	Depth to saturated zone	0.43	   Depth to   saturated zone	0.77
	   	Slow water movement	0.26	Slow water   movement	0.26	Slow water movement Gravel content	0.26
56D: Chautauqua	     80	    Very limited   Slope	1.00	    Very limited   Slope	      1.00	    Very limited   Slope	1.00
	   	Depth to saturated zone Slow water movement	0.77	Depth to saturated zone Slow water movement	0.43	Depth to saturated zone Slow water movement	0.77
57A:	     	movement		movement		Movement   Gravel content 	0.22
Busti	80   	   Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	0.99	  Very limited   Depth to   saturated zone	1.00
	   	Slow water   movement	0.49	Slow water   movement 	0.49	Slow water   movement   Gravel content	0.49
57B: Busti	     80 	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	      0.99	  Very limited   Depth to   saturated zone	1.00
	   	Slow water movement	0.49	Slow water   movement	0.49	Slope     Slow water	0.49
57C:						movement   Gravel content 	0.22
Busti	   80 	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	0.99	  Very limited   Depth to   saturated zone	1.00
	   	Slope Slow water movement	0.63	Slope   Slow water   movement	0.63	Slope Slow water movement	1.00
58B:						Gravel content	0.22
Rushford	80   	Somewhat limited   Slow water   movement	0.99	Somewhat limited   Slow water   movement	0.99	Very limited   Gravel content 	1.00
		Depth to saturated zone	0.84	Depth to saturated zone	0.52	Slope	1.00
	     	Gravel content	0.01	Gravel content   	0.01   	Slow water   movement   Depth to   saturated zone	0.99

Table 11.—Camp Areas, Picnic Areas, and Playgrounds—Continued

Map symbol and soil name	Pct. of map			Picnic areas		Playgrounds	
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
58C: Rushford	     80 	  Somewhat limited   Slow water   movement	      0.99	    Somewhat limited   Slow water   movement	      0.99	    Very limited   Slope	1.00
		Depth to saturated zone	0.84	Slope	0.63	Gravel content	1.00
		Slope     Gravel content	0.63	Depth to saturated zone Gravel content	0.52	Slow water   movement   Depth to	0.99
		Gravel content   		Gravel content   		Depth to   saturated zone	0.84
59B: Yorkshire	85	  Very limited   Depth to   saturated zone	1.00	  Somewhat limited   Slow water   movement	    0.96	  Very limited   Depth to   saturated zone	1.00
		Slow water   movement	0.96	Depth to saturated zone	0.83	Slope	1.00
		Gravel content	0.08	Gravel content	0.08	Gravel content Slow water movement	1.00
59C: Yorkshire	85	  Very limited   Depth to   saturated zone	1.00	  Somewhat limited   Slow water   movement	0.96	  Very limited   Depth to   saturated zone	1.00
		Slow water movement	0.96	Depth to saturated zone	0.83	Slope	1.00
		Slope   Gravel content 	0.63	Slope   Gravel content 	0.63	Gravel content Slow water movement	1.00
59D: Yorkshire	85	  Very limited   Depth to	1.00	  Very limited   Slope	1.00	  Very limited   Depth to	1.00
		saturated zone   Slope 	1.00	   Slow water   movement	0.96	saturated zone   Slope 	1.00
	İ	Slow water movement	0.96	Depth to saturated zone	0.83	Gravel content	1.00
		Gravel content	0.08	Gravel content	0.08	Slow water   movement	0.96
60A: Napoli	     80	    Very limited		    Very limited		    Very limited	
	İ	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water   movement	0.49	Slow water   movement	0.49	Slow water   movement   Gravel content	0.49
60B: Napoli	80	    Very limited   Depth to	      1.00	    Very limited   Depth to	      1.00	    Very limited   Depth to	1.00
		saturated zone Slow water movement	0.49	saturated zone Slow water movement	0.49	saturated zone	0.88
		 		movement		   Slow water   movement	0.49

Table 11.—Camp Areas, Picnic Areas, and Playgrounds—Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
60C: Napoli	   80         	   Very limited   Depth to   saturated zone   Slope   Slow water   movement	    1.00    0.63  0.49	   Very limited   Depth to   saturated zone   Slope   Slow water   movement	    1.00    0.63  0.49	Very limited Depth to saturated zone Slope Slow water movement Gravel content	1.00
60D: Napoli	     80   	  Very limited   Depth to   saturated zone   Slope	    1.00    1.00	  Very limited   Slope     Depth to	    1.00    1.00	  Very limited   Depth to   saturated zone   Slope	1.00
	     	Slow water   movement	0.49	saturated zone Slow water movement	0.49	Slow water movement Gravel content	0.49
61B: Schuyler	   80   81   1	   Somewhat limited   Depth to   saturated zone   Slow water   movement	        0.77      0.49	   Somewhat limited   Slow water   movement   Depth to   saturated zone	    0.49    0.43	Somewhat limited Slope Depth to saturated zone Slow water movement	0.88
61C: Schuyler	   80       	  Somewhat limited   Depth to   saturated zone   Slope   Slow water	0.77	Somewhat limited   Slope   Slow water   movement   Depth to	0.63	Very limited Slope Depth to saturated zone Slow water	1.00
61D: Schuyler	     80       	movement	    1.00  0.77    0.49	saturated zone 	    1.00  0.49    0.43	movement    Very limited   Slope   Depth to   saturated zone   Slow water   movement	1.00
61E: Schuyler	     80       		    1.00  0.77    0.49	Very limited   Slope   Slow water   movement   Depth to   saturated zone	    1.00  0.49    0.43	Very limited Slope Depth to saturated zone Slow water movement	1.00
61F: Schuyler	   80         	   Very limited   Slope   Depth to   saturated zone   Slow water   movement	  1.00  0.77    0.49	   Very limited   Slope   Slow water   movement   Depth to   saturated zone	  1.00  0.49    0.43	Very limited   Slope   Depth to   saturated zone   Slow water   movement	1.00

Table 11.—Camp Areas, Picnic Areas, and Playgrounds—Continued

Map symbol and soil name	Pct. of map unit	<u> </u>		Picnic areas		Playgrounds   	
	ļ	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
62B: Mardin	   85         	  Very limited   Depth to   saturated zone   Slow water   movement	1.00	Somewhat limited   Slow water   movement   Depth to   saturated zone	    0.99    0.96	  Very limited   Depth to   saturated zone   Slope     Gravel content	1.00
			   			Slow water   movement	0.99
62C: Mardin	85	  Very limited   Depth to   saturated zone	1.00	  Somewhat limited   Slow water   movement	0.99	  Very limited   Depth to   saturated zone	1.00
		Slow water movement	0.99	Depth to saturated zone	0.96	Slope	1.00
		Slope     	0.63	Slope     	0.63	Gravel content Slow water movement	0.99  0.99 
62D: Mardin	85	  Very limited   Depth to   saturated zone	1.00	  Very limited   Slope	1.00	  Very limited   Depth to   saturated zone	1.00
		Slope	1.00	Slow water   movement	0.99	Slope	1.00
		Slow water   movement 	0.99	Depth to saturated zone	0.96	Gravel content Slow water movement	0.99
63B: Langford	85	    -  Somewhat limited   Slow water	0.99	    -  Somewhat limited   Slow water	0.99	 	1.00
		movement Depth to	0.81	movement Depth to	0.48	Gravel content	1.00
		saturated zone Gravel content	0.01	saturated zone Gravel content	0.01	Slow water   movement	0.99
			j   			Depth to saturated zone	0.81
63C: Langford	85	  Somewhat limited   Slow water   movement	0.99	  Somewhat limited   Slow water   movement	0.99	  Very limited   Slope	1.00
		Depth to saturated zone	0.81	Slope	0.63	Gravel content	1.00
		Slope	0.63	Depth to saturated zone	0.48	Slow water   movement	0.99
		Gravel content	0.01	Gravel content	0.01	Depth to   saturated zone	0.81
63D: Langford	   85   	  Very limited   Slope   Slow water   movement	1.00	  Very limited   Slope   Slow water   movement	1.00	  Very limited   Slope   Gravel content	  1.00  1.00
		Depth to   saturated zone   Gravel content	0.81	Depth to saturated zone Gravel content	0.48	Slow water   movement   Depth to	0.99
		Graver Concent		Graver Concent		Depth to   saturated zone 	

Table 11.—Camp Areas, Picnic Areas, and Playgrounds—Continued

Map symbol and soil name	Pct. of map unit	<u> </u>		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and   limiting features	Value	Rating class and   limiting features	Value
64C: Mardin	   85               	Very limited   Depth to   saturated zone   Slow water   movement   Slope   Large stones   content	  1.00  0.99  0.63  0.53	Somewhat limited   Slow water   movement   Depth to   saturated zone   Slope   Large stones   content	0.99	Very limited   Depth to   saturated zone   Slope   Gravel content   Slow water   movement   Large stones   content	1.00
66B: Volusia	   80               	Very limited   Depth to   saturated zone   Slow water   movement   Large stones   content   Gravel content	  1.00  0.99    0.53    0.01	Very limited   Depth to   saturated zone   Slow water   movement   Large stones   content   Gravel content	1.00   0.99   0.53   0.01	Very limited Depth to saturated zone Slope Gravel content Slow water movement Large stones content	1.00  1.00  1.00  0.99  0.53
67A: Dalton	   80     	   Very limited   Depth to   saturated zone   Slow water   movement	    1.00    0.99	   Very limited   Depth to   saturated zone   Slow water   movement	    1.00    0.99	Very limited   Depth to   saturated zone   Slow water   movement	1.00
67B: Dalton	   80       	  Very limited   Depth to   saturated zone   Slow water   movement	    1.00    0.99	Very limited   Depth to   saturated zone   Slow water   movement	    1.00    0.99	Very limited Depth to saturated zone Slope Slow water movement	1.00
68A: Volusia	   80           	Very limited   Depth to   saturated zone   Slow water   movement   Gravel content	  1.00    0.99    0.01	Very limited   Depth to   saturated zone   Slow water   movement   Gravel content	  1.00    0.99    0.01	Very limited   Depth to   saturated zone   Gravel content   Slow water   movement	1.00
68B: Volusia	   80           	   Very limited   Depth to   saturated zone   Slow water   movement   Gravel content	1.00	Very limited   Depth to   saturated zone   Slow water   movement   Gravel content	1.00	Very limited Depth to saturated zone Slope Gravel content Slow water movement	1.00

Table 11.—Camp Areas, Picnic Areas, and Playgrounds—Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
68C: Volusia	   80         	Very limited Depth to saturated zone Slow water movement Slope Gravel content	  1.00    0.99    0.63  0.01	Very limited   Depth to   saturated zone   Slow water   movement   Slope   Gravel content	  1.00    0.99    0.63  0.01	Very limited Depth to saturated zone Slope Gravel content Slow water movement	  1.00    1.00    1.00  0.99
69A: Erie	   80   81   1   1	Very limited   Depth to   saturated zone   Slow water   movement   Gravel content	  1.00    0.96    0.01	Very limited   Depth to   saturated zone   Slow water   movement   Gravel content	  1.00    0.96    0.01	Very limited   Depth to   saturated zone   Gravel content   Slow water   movement	    1.00    1.00    0.96
69B: Erie	   80   80       	Very limited Depth to saturated zone Slow water movement Gravel content	1.00	Very limited   Depth to   saturated zone   Slow water   movement   Gravel content	  1.00    0.96    0.01	Very limited Depth to saturated zone Slope Gravel content Slow water movement	  1.00    1.00    1.00  0.96
69C: Erie	   80           	Very limited Depth to saturated zone Slow water movement Slope Gravel content	  1.00  0.96    0.63  0.01	Very limited   Depth to   saturated zone   Slow water   movement   Slope   Gravel content	  1.00  0.96    0.63  0.01	Very limited Depth to saturated zone Slope Gravel content Slow water movement	  1.00    1.00    1.00  0.96
71E: Mongaup	   85               	Very limited Slope Large stones content Gravel content	1.00	Very limited   Slope   Large stones   content   Gravel content	1.00	Very limited Slope Gravel content  Depth to bedrock Large stones content Large stones content	  1.00  1.00    0.71  0.53    0.01
71F: Mongaup	   85             	   Very limited   Slope   Large stones   content   Gravel content	1.00	  Very limited   Slope   Large stones   content   Gravel content	1.00	Very limited   Slope   Gravel content   Depth to bedrock   Large stones   content   Large stones   content   content   Conte	  1.00  1.00    0.71  0.53    0.01

Table 11.—Camp Areas, Picnic Areas, and Playgrounds—Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
	!	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
72B: Towerville	80	  Somewhat limited   Depth to   saturated zone	0.77	  Somewhat limited   Slow water   movement	0.49	  Somewhat limited   Slope	0.88
		Slow water movement	0.49	Depth to saturated zone	0.43	Depth to saturated zone Slow water movement	0.77
						Depth to bedrock Gravel content	0.29
72C: Towerville	80	  Somewhat limited   Depth to   saturated zone	0.77	  Somewhat limited   Slope 	0.63	  Very limited   Slope 	1.00
	j j	Slope	0.63	Slow water   movement	0.49	Depth to saturated zone	0.77
		Slow water   movement	0.49   	Depth to saturated zone	0.43	Slow water   movement   Depth to bedrock	0.49    0.29
72D:		 				Gravel content	0.22
Towerville	80	  Very limited   Slope   Depth to	1.00	  Very limited   Slope   Slow water	1.00	  Very limited   Slope   Depth to	1.00
		saturated zone Slow water movement	0.49	movement Depth to saturated zone	0.43	saturated zone Slow water movement	0.49
	   		   	 		Depth to bedrock Gravel content	0.29
72E: Towerville	80	  Very limited   Slope   Depth to	  1.00  0.77	  Very limited   Slope   Slow water	1.00	  Very limited   Slope   Depth to	    1.00  0.77
		saturated zone Slow water movement	0.49	movement Depth to saturated zone	0.43	saturated zone Slow water movement Depth to bedrock	0.49
		   				Gravel content	0.29
72F: Towerville	80	  Very limited   Slope   Depth to	  1.00  0.77	  Very limited   Slope   Slow water	1.00	  Very limited   Slope   Depth to	  1.00  0.77
		saturated zone Slow water movement	0.49	movement Depth to saturated zone	0.43	saturated zone Slow water movement	0.49
		 		 		Depth to bedrock Gravel content	0.29
73B: Gretor	80	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	0.99	  Very limited   Depth to   saturated zone	1.00
	<u> </u> 	Slow water   movement	0.26	Slow water   movement	0.26	Slope	1.00
		Gravel content	0.25	Gravel content	0.25	Gravel content Depth to bedrock Slow water movement	1.00  0.84  0.26

Table 11.—Camp Areas, Picnic Areas, and Playgrounds—Continued

Map symbol and soil name	Pct. of map unit	Camp areas   		Picnic areas		Playgrounds	
	ļ	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73C: Gretor	   80           	Very limited   Depth to   saturated zone   Slope   Slow water   movement   Gravel content	  1.00  0.63  0.26 	Very limited   Depth to   saturated zone   Slope   Slow water   movement   Gravel content	0.99	Very limited   Depth to   saturated zone   Slope   Gravel content   Depth to bedrock   Slow water   movement	  1.00    1.00  1.00    0.84  0.26
74: Ashville	   80     	Very limited   Depth to   saturated zone   Slow water   movement	1.00	Very limited   Depth to   saturated zone   Slow water   movement	1.00	Very limited Depth to saturated zone Slow water movement	  1.00    0.26
75: Alden	   85         	Very limited   Depth to   saturated zone   Ponding   Slow water   movement	  1.00    1.00    0.49	Very limited   Ponding	  1.00    1.00    0.49	Very limited Depth to saturated zone Ponding Slow water movement	  1.00    1.00    0.49
76A: Orpark	     80     	Very limited   Depth to   saturated zone   Slow water   movement	1.00	Very limited   Depth to   saturated zone   Slow water   movement	    0.99    0.99	Very limited   Depth to   saturated zone   Slow water   movement	  1.00    0.99
76B: Orpark	   80     	  Very limited   Depth to   saturated zone     Slow water   movement	1.00	  Very limited   Depth to   saturated zone     Slow water   movement	0.99	  Very limited   Depth to   saturated zone     Slow water   movement	1.00
76C: Orpark	       80     	Very limited   Depth to   saturated zone   Slow water   movement   Slope	0.63	Very limited   Depth to   saturated zone   Slow water   movement   Slope	0.99	Slope   Depth to bedrock	0.88
77A: Chippewa	     80       	   Very limited   Depth to   saturated zone   Slow water   movement	1.00	   Very limited   Depth to   saturated zone   Slow water   movement	1.00	   Very limited   Depth to   saturated zone   Slow water   movement	    1.00    0.99

Table 11.—Camp Areas, Picnic Areas, and Playgrounds—Continued

Map symbol and soil name	Pct. of map unit	<u> </u>		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
78A: Hornell	   80     	   Very limited   Depth to   saturated zone   Slow water   movement	  1.00    0.99	   Very limited   Depth to   saturated zone   Slow water   movement	    0.99    0.99	   Very limited   Depth to   saturated zone   Slow water   movement	    1.00    0.99
78B: Hornell	   80           	Very limited   Depth to   saturated zone   Slow water   movement	  1.00    0.99   	  Very limited   Depth to   saturated zone   Slow water   movement	    0.99    0.99   	Very limited   Depth to   saturated zone   Slope   Slow water   movement   Depth to bedrock	  1.00    1.00    0.99    0.16
78C: Hornell	   80           	Very limited   Depth to   saturated zone   Slow water   movement   Slope	  1.00    0.99    0.63	Very limited   Depth to   saturated zone   Slow water   movement   Slope	0.99	Very limited   Depth to   saturated zone   Slope   Slow water   movement   Depth to bedrock	  1.00    1.00    0.99    0.16
78D: Hornell	   80           	Very limited   Depth to   saturated zone   Slope   Slow water   movement	    1.00    1.00    0.99	Very limited   Slope   Depth to   saturated zone   Slow water   movement	    1.00    0.99    0.99	Very limited   Depth to   saturated zone   Slope   Slow water   movement   Depth to bedrock	  1.00  1.00    0.99    0.16
78F: Hornell	   40         	Very limited   Depth to   saturated zone   Slope   Slow water   movement	1.00	Very limited   Slope   Depth to   saturated zone   Slow water   movement	1.00	Very limited   Depth to   saturated zone   Slope   Slow water   movement   Depth to bedrock	1.00
Hudson	   35         	Very limited   Slope   Slow water   movement   Depth to   saturated zone	  1.00  0.99    0.88	Very limited   Slope   Slow water   movement   Depth to   saturated zone	  1.00  0.99    0.56	Very limited   Slope   Slow water   movement   Depth to   saturated zone	  1.00  0.99    0.88
79B: Mongaup	   85     	  Somewhat limited   Gravel content 	    0.06 	  Somewhat limited   Gravel content   	    0.06   	  Very limited   Slope   Gravel content   Depth to bedrock	  1.00  1.00  0.71

Table 11.—Camp Areas, Picnic Areas, and Playgrounds—Continued

Map symbol and soil name	Pct. of map unit	_		Picnic areas		Playgrounds   	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
79C: Mongaup	     85   	  Somewhat limited   Slope   Gravel content	0.63	  Somewhat limited   Slope   Gravel content	0.63	  Very limited   Slope   Gravel content   Depth to bedrock	  1.00  1.00  0.71
79D: Mongaup	     85   	  Very limited   Slope   Gravel content	1.00	  Very limited   Slope   Gravel content	1.00	  Very limited   Slope   Gravel content   Depth to bedrock	  1.00  1.00  0.71
79E: Mongaup	   85   	  Very limited   Slope   Gravel content	1.00	  Very limited   Slope   Gravel content	1.00	   Very limited   Slope   Gravel content   Depth to bedrock	  1.00  1.00  0.71
79F: Mongaup	   85   	  Very limited   Slope   Gravel content	1.00	  Very limited   Slope   Gravel content	1.00	Very limited   Slope   Gravel content   Depth to bedrock	  1.00  1.00  0.71
80A: Fremont	   80       	Very limited   Depth to   saturated zone   Slow water   movement	1.00	Very limited   Depth to   saturated zone   Slow water   movement	  0.99    0.99	Very limited Depth to saturated zone Slow water movement Gravel content	1.00
80B: Fremont	   80         	   Very limited   Depth to   saturated zone   Slow water   movement	1.00	   Very limited   Depth to   saturated zone   Slow water   movement	0.99	Very limited Depth to saturated zone Slope Slow water movement Gravel content	  1.00    1.00    0.99    0.22
80C: Fremont	   80           	Very limited   Depth to   saturated zone   Slow water   movement   Slope	1.00	Very limited   Depth to   saturated zone   Slow water   movement   Slope	0.99	Very limited Depth to saturated zone Slope Slow water movement Gravel content	  1.00    1.00    0.99 
81B: Varysburg	   85           	   Very limited   Slow water   movement   Depth to   saturated zone   Gravel content	0.20	   Very limited   Slow water   movement   Depth to   saturated zone   Gravel content	0.10	Very limited   Slow water   movement   Slope   Gravel content   Depth to   saturated zone	  1.00    1.00  0.20

Table 11.—Camp Areas, Picnic Areas, and Playgrounds—Continued

Map symbol and soil name	Pct. of map unit	Camp areas   		Picnic areas		Playgrounds   	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
81C: Varysburg	85	  Very limited   Slow water   movement	1.00	  Very limited   Slow water   movement	1.00	  Very limited   Slope	1.00
		Slope	0.63	Slope	0.63	Slow water   movement	1.00
	   	Depth to   saturated zone   Gravel content	0.20	Depth to   saturated zone   Gravel content	0.10	Gravel content  Depth to saturated zone	1.00
81D:	   	 		 		saturated zone	
Varysburg	85	Very limited   Slope	1.00	Very limited   Slope	1.00	Very limited   Slope	1.00
		Slow water movement Depth to	1.00	Slow water movement Depth to	1.00	Slow water   movement   Gravel content	1.00    1.00
		saturated zone Gravel content	0.01	saturated zone Gravel content	0.01	Depth to saturated zone	0.20
81E: Varysburg	85	  Very limited		  Very limited		  Very limited	
		Slope   Slow water   movement	1.00	Slope   Slow water   movement	1.00	Slope   Slow water   movement	1.00
	   	Depth to   saturated zone   Gravel content	0.20	Depth to   saturated zone   Gravel content	0.10	Gravel content Depth to	1.00
82F:						saturated zone	
Rock outcrop	50	  Not rated 		  Not rated 		  Not rated 	   
Manlius	30	Very limited   Slope 	1.00	Very limited   Slope 	1.00	Very limited   Slope   Gravel content   Depth to bedrock	  1.00  0.99  0.16
84B: Elko	85	Depth to	0.95	  Somewhat limited   Depth to	0.68	  Very limited   Slope	1.00
	   	saturated zone Slow water movement	0.43	saturated zone Slow water movement	0.43	Depth to saturated zone	0.95
	   	 		 		Slow water   movement   Gravel content	0.43
84C:			į Į			 	į Į
Elko	85   	Somewhat limited   Depth to   saturated zone	0.95	Somewhat limited   Depth to   saturated zone	0.68	Very limited   Slope 	1.00
		Slope	0.63	Slope	0.63	Depth to saturated zone	0.95
		Slow water   movement	0.43	Slow water   movement 	0.43	Slow water   movement   Gravel content	0.43

Table 11.—Camp Areas, Picnic Areas, and Playgrounds—Continued

Map symbol and soil name	Pct. of map unit	<u>-</u>		Picnic areas		Playgrounds	
	.	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
85B:							
Onoville	85   	Very limited   Depth to   saturated zone	1.00	Somewhat limited   Depth to   saturated zone	0.88	Very limited   Depth to   saturated zone	1.00
		Slow water   movement 	0.49	Slow water   movement 	0.49	Slope     Slow water	1.00
						movement	
85C: Onoville	   85 	  Very limited   Depth to   saturated zone	1.00	  Somewhat limited   Depth to   saturated zone	0.88	  Very limited   Depth to   saturated zone	1.00
		Slope   Slow water   movement	0.63	Slope   Slow water   movement	0.63	Slope   Slow water   movement	1.00
85D: Onoville	85	  Very limited   Depth to	1.00	  Very limited   Slope	1.00	  Very limited   Depth to	1.00
		saturated zone	1.00	Depth to saturated zone	0.88	saturated zone	1.00
		Slow water   movement	0.49	saturated zone   Slow water   movement	0.49	Slow water   movement	0.49
86B: Eldred	85	  Somewhat limited   Depth to   saturated zone   Slow water	    0.77    0.26	  Somewhat limited   Depth to   saturated zone   Slow water	0.43	  Very limited   Slope     Depth to	1.00
	     	movement		movement		saturated zone Slow water movement Gravel content	0.26
86C:		   	ļ				
Eldred	85	Somewhat limited   Depth to   saturated zone	0.77	Somewhat limited   Slope	0.63	Very limited   Slope	1.00
		Slope	0.63	Depth to saturated zone	0.43	Depth to saturated zone	0.77
	İ	Slow water movement	0.26	Slow water movement	0.26	Slow water movement	0.26
	ļ		ļ		į Į	Gravel content	0.22
86D: Eldred	   85 	  Very limited   Slope   Depth to	1.00	  Very limited   Slope   Depth to	1.00	  Very limited   Slope   Depth to	1.00
		saturated zone   Slow water   movement	0.26	saturated zone   Slow water   movement	0.26	saturated zone   Slow water   movement	0.26
		movement		movement		Gravel content	0.22

Table 11.—Camp Areas, Picnic Areas, and Playgrounds—Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
	   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
87B: Shongo	     80     	   Very limited   Depth to   saturated zone   Slow water   movement	      1.00    0.49	   Very limited   Depth to   saturated zone   Slow water   movement	      1.00    0.49	Very limited   Depth to   saturated zone   Slope   Slow water	  1.00    1.00    0.49
87C: Shongo	     80       	  Very limited   Depth to   saturated zone   Slope   Slow water   movement	    1.00    0.63  0.49	  Very limited   Depth to   saturated zone   Slope   Slow water   movement	    1.00    0.63  0.49	movement 	    1.00    1.00  0.49
88A: Ivory	   85           	Very limited   Depth to   saturated zone   Slow water   movement	  1.00    0.96   	Very limited   Depth to   saturated zone   Slow water   movement	0.99	Very limited   Depth to   saturated zone   Slow water   movement   Large stones   content	  1.00    0.96    0.03
88B: Ivory	   85           	Very limited   Depth to   saturated zone   Slow water   movement	1.00	Very limited   Depth to   saturated zone   Slow water   movement	0.99	Very limited   Depth to   saturated zone   Slope     Slow water   movement   Large stones   content	  1.00    1.00    0.96
88C: Ivory	   85             	Very limited   Depth to   saturated zone   Slow water   movement   Slope	  1.00    0.96    0.63	Very limited   Depth to   saturated zone   Slow water   movement   Slope	0.99	Very limited   Depth to   saturated zone   Slope   Slow water   movement   Large stones   content	  1.00    1.00    0.96    0.03
88D: Ivory	   85             	Very limited   Depth to   saturated zone   Slope   Slow water   movement	  1.00    1.00    0.96	Very limited   Slope   Depth to   saturated zone   Slow water   movement	  1.00    0.99    0.96	Very limited   Depth to   saturated zone   Slope   Slow water   movement   Large stones   content	  1.00    1.00    0.96    0.03

Table 11.—Camp Areas, Picnic Areas, and Playgrounds—Continued

Map symbol and soil name	Pct. of map unit	<u> </u>		Picnic areas		Playgrounds	
- <u></u>	ļ	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
89B: Portville	   80           	   Very limited   Depth to   saturated zone   Slow water   movement	    1.00    0.49	   Very limited   Depth to   saturated zone   Slow water   movement	    1.00    0.49		1.00
89C: Portville	   80         	Very limited   Depth to   saturated zone   Slope   Slow water   movement	    1.00    0.63  0.49	Very limited Depth to saturated zone Slope Slow water movement	  1.00    0.63  0.49	Very limited Depth to saturated zone Slope Slow water movement Gravel content	    1.00  1.00  0.49 
90A: Brinkerton	   85       	Very limited   Depth to   saturated zone   Slow water   movement	  1.00    0.96	Very limited   Depth to   saturated zone   Slow water   movement	1.00	Very limited   Depth to   saturated zone   Slow water   movement	1.00
90B: Brinkerton	   85         	Very limited   Depth to   saturated zone   Slow water   movement	  1.00    0.96	Very limited   Depth to   saturated zone   Slow water   movement	1.00	Very limited Depth to saturated zone Slope Slow water movement	1.00
91A: Palms	   85   85       	   Very limited   Depth to   saturated zone   Ponding   Organic matter   content	  1.00    1.00    1.00	Very limited   Ponding	  1.00    1.00    1.00	   Very limited   Depth to   saturated zone   Organic matter   content   Ponding	1.00
92: Carlisle	   85           	Very limited   Depth to   saturated zone   Ponding   Organic matter   content	  1.00    1.00    1.00	Very limited   Ponding	  1.00    1.00    1.00	   Very limited   Depth to   saturated zone   Organic matter   content   Ponding	1.00
93: Saprists, inundated-	   85           	Very limited   Depth to   saturated zone   Ponding   Organic matter   content	  1.00    1.00    1.00	Very limited   Ponding	  1.00    1.00    1.00	Very limited   Depth to   saturated zone   Organic matter   content   Ponding	1.00

Table 11.—Camp Areas, Picnic Areas, and Playgrounds—Continued

Map symbol and soil name	Pct.	Camp areas		Picnic areas		Playgrounds	
<u> </u>	map  unit			İ		 	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
94B: Frewsburg	     80       	  Very limited   Depth to   saturated zone	      1.00   	  Very limited   Depth to   saturated zone	      0.99   	  Very limited   Depth to   saturated zone   Slope   Depth to bedrock	    1.00    0.88  0.01
94C: Frewsburg	   80     	  Very limited   Depth to   saturated zone   Slope	  1.00    0.63	  Very limited   Depth to   saturated zone   Slope	    0.99    0.63	  Very limited   Depth to   saturated zone   Slope   Depth to bedrock	  1.00    1.00  0.01
95B: Mandy	   85     	Somewhat limited   Gravel content	    0.06   	  Somewhat limited   Gravel content	    0.06   	Very limited Slope Gravel content Depth to bedrock	  1.00  1.00  0.20
95C: Mandy	   85     	  Somewhat limited   Slope   Gravel content	  0.63  0.06	  Somewhat limited   Slope   Gravel content	    0.63  0.06	  Very limited   Slope   Gravel content   Depth to bedrock	  1.00  1.00  0.20
95D: Mandy	   85     	  Very limited   Slope   Gravel content	    1.00  0.06	  Very limited   Slope   Gravel content 	    1.00  0.06	  Very limited   Slope   Gravel content   Depth to bedrock	  1.00  1.00  0.20
95E: Mandy	   85     	  Very limited   Slope   Gravel content	  1.00  0.06	  Very limited   Slope   Gravel content	    1.00  0.06	  Very limited   Slope   Gravel content   Depth to bedrock	  1.00  1.00  0.20
95F: Mandy	   85     	  Very limited   Slope   Gravel content	  1.00  0.06	  Very limited   Slope   Gravel content	  1.00  0.06	  Very limited   Slope   Gravel content   Depth to bedrock	  1.00  1.00  0.20
96B: Carrollton	   80         	  Somewhat limited   Depth to   saturated zone   Gravel content	0.01	  Somewhat limited   Gravel content 	0.01	Very limited   Gravel content   Slope   Depth to bedrock   Depth to saturated zone	  1.00    1.00  0.46  0.01
96C: Carrollton	     80   	  Somewhat limited   Slope   Gravel content 	    0.63  0.01	  Somewhat limited   Slope   Gravel content	    0.63  0.01	  Very limited   Slope   Gravel content   Depth to bedrock	    1.00  1.00  0.46

Table 11.—Camp Areas, Picnic Areas, and Playgrounds—Continued

Map symbol and soil name	Pct. of map unit	   Camp areas 		Picnic areas		Playgrounds	
	.	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
96D: Carrollton	80	Very limited   Slope   Gravel content	    1.00  0.01	   Very limited   Slope   Gravel content	    1.00  0.01	Very limited Slope Gravel content Depth to bedrock	  1.00  1.00  0.46
96E: Carrollton	80	  Very limited   Slope   Gravel content	    1.00  0.01	  Very limited   Slope   Gravel content	  1.00  0.01	   Very limited   Slope   Gravel content   Depth to bedrock	1.00  1.00  0.46
96F: Carrollton	80	  Very limited   Slope   Gravel content	  1.00  0.01	  Very limited   Slope   Gravel content	  1.00  0.01	   Very limited   Slope   Gravel content   Depth to bedrock	1.00  1.00  0.46
97B: Kinzua	   85   	  Somewhat limited   Gravel content	    0.01	  Somewhat limited   Gravel content	0.01	  Very limited   Slope   Gravel content	1.00
97C: Kinzua	85	  Somewhat limited   Slope   Gravel content	0.63	  Somewhat limited   Slope   Gravel content	0.63	  Very limited   Slope   Gravel content	1.00
97D: Kinzua	85	  Very limited   Slope   Gravel content	    1.00  0.01	  Very limited   Slope   Gravel content	1.00	  Very limited   Slope   Gravel content	1.00
97E: Kinzua	85	  Very limited   Slope   Gravel content	    1.00  0.01	  Very limited   Slope   Gravel content	1.00	  Very limited   Slope   Gravel content	1.00
97F: Kinzua	85	  Very limited   Slope   Gravel content	    1.00  0.01	  Very limited   Slope   Gravel content	1.00	  Very limited   Slope   Gravel content	1.00
98D: Kinzua	   85     	  Very limited   Slope   Large stones   content   Gravel content	  1.00  1.00      0.01	  Very limited   Slope   Large stones   content   Gravel content	1.00	   Very limited   Slope   Large stones   content   Gravel content	  1.00  1.00    1.00
98E: Kinzua	   85     	  Very limited   Slope   Large stones   content   Gravel content	  1.00  1.00    0.01	  Very limited   Slope   Large stones   content   Gravel content	  1.00  1.00    0.01	Very limited Slope Large stones content Gravel content	1.00

Table 11.—Camp Areas, Picnic Areas, and Playgrounds—Continued

Map symbol and soil name	Pct. of map unit	of		Picnic areas		Playgrounds   	
	 	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
99B: Buchanan	     85   	  Somewhat limited   Slow water   movement   Depth to	0.96	  Somewhat limited   Slow water   movement   Depth to	    0.96    0.35	  Very limited   Slope     Slow water	1.00
	     	saturated zone		saturated zone       		movement Depth to saturated zone Gravel content	0.67
99C: Buchanan	   85 	  Somewhat limited   Slow water   movement	0.96	  Somewhat limited   Slow water   movement	0.96	  Very limited   Slope	1.00
	   	Depth to saturated zone	0.67	Movement   Slope 	0.63	   Slow water   movement	0.96
	   	Slope   	0.63	Depth to saturated zone	0.35	Depth to   saturated zone   Gravel content	0.67
99D: Buchanan	   85         	Very limited   Slope   Slow water   movement   Depth to   saturated zone	  1.00  0.96    0.67	   Very limited   Slope   Slow water   movement   Depth to   saturated zone	  1.00  0.96    0.35	Very limited   Slope   Slow water   movement   Depth to   saturated zone   Gravel content	  1.00  0.96    0.67 
100: Udorthents	     85	    Not rated 		    Not rated 		    Not rated 	
101: Udorthents, refuse substratum	     90	    Not rated		    Not rated		    Not rated	
102C: Mandy	     40   	  Somewhat limited   Gravel content   Slope	0.06	  Somewhat limited   Gravel content   Slope	    0.06  0.04	   Very limited   Slope   Gravel content   Depth to bedrock	  1.00  1.00  0.20
Rock outcrop	   35 	  Not rated 		  Not rated 		  Not rated 	
103C: Knapp Creek	   40 	  Somewhat limited   Slope	0.04	  Somewhat limited   Slope	0.04	  Very limited   Slope	1.00
Rock outcrop	   35 	  Not rated 		  Not rated 		  Not rated 	
104B: Flatiron	   80   	  Very limited   Large stones   content	1.00	  Very limited   Large stones   content	    1.00 	  Very limited   Large stones   content   Slope	1.00
104C: Flatiron	     80   	  Very limited   Large stones   content   Slope	1.00	  Very limited   Large stones   content   Slope	    1.00    0.63	  Very limited   Slope   Large stones   content	1.00

Table 11.—Camp Areas, Picnic Areas, and Playgrounds—Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds   		
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	
104D: Flatiron	     80     	  Very limited   Slope   Large stones   content	    1.00  1.00	  Very limited   Slope   Large stones   content	    1.00  1.00	  Very limited   Slope   Large stones   content	1.00	
104E: Flatiron	     80     	  Very limited   Slope   Large stones   content	    1.00  1.00	  Very limited   Slope   Large stones   content	1.00	  Very limited   Slope   Large stones   content	1.00	
108D: Hartleton	   85   	  Very limited   Slope 	    1.00   	  Very limited   Slope 	    1.00   	Very limited Slope Gravel content Large stones content	  1.00  0.68  0.01	
108E: Hartleton	   85       	  Very limited   Slope 	    1.00   	  Very limited   Slope 	    1.00   	Very limited   Slope   Gravel content   Large stones   content	  1.00  0.68  0.01	
108F: Hartleton	   85       	   Very limited   Slope 	1.00	   Very limited   Slope 	1.00	Very limited Slope Gravel content Large stones content	  1.00  0.68  0.01	
131: Lamson	   85   	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	1.00	
132B: Wiscoy	   80           	Very limited Depth to saturated zone Slow water movement	    1.00    0.99     	Very limited Depth to saturated zone Slow water movement	1.00	Very limited Depth to saturated zone Slope Gravel content Slow water movement	  1.00    1.00    0.99  0.99	
132C: Wiscoy	   80           	Very limited   Depth to   saturated zone   Slow water   movement   Slope	  1.00    0.99    0.63	Very limited   Depth to   saturated zone   Slow water   movement   Slope	  1.00    0.99    0.63	Very limited Depth to saturated zone Slope Gravel content Slow water movement	  1.00    1.00    0.99  0.99	

Table 11.—Camp Areas, Picnic Areas, and Playgrounds—Continued

Map symbol and soil name	Pct. of map	Camp areas		Picnic areas		Playgrounds	
	unit	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
135C:			 		 		
Hudson	85	Somewhat limited   Slow water   movement	0.96	Somewhat limited   Slow water   movement	0.96	  Very limited   Slope	1.00
	ļ	Depth to saturated zone	0.88	Slope	0.63	   Slow water   movement	0.96
		Slope	0.63	Depth to saturated zone	0.56	Depth to saturated zone	0.88
135D:							
Hudson	85	Very limited		Very limited		Very limited	
		Slope   Slow water	1.00 0.96	Slope   Slow water	1.00 0.96	Slope   Slow water	1.00
	į	movement	İ	movement		movement	İ
		Depth to saturated zone	0.88	Depth to saturated zone	0.56	Depth to saturated zone	0.88
135E:							
Hudson	85	Very limited	į	Very limited		Very limited	
		Slope Slow water	1.00	Slope Slow water	1.00	Slope Slow water	1.00
	İ	movement		movement		movement	
		Depth to saturated zone	0.88	Depth to saturated zone	0.56	Depth to saturated zone	0.88
140D:							
Dunkirk	85	Very limited	į	Very limited		Very limited	į
		Slope   Slow water	1.00	Slope Slow water	1.00	Slope Slow water	1.00
		movement		movement		movement	
140E:							
Dunkirk	85	Very limited   Slope	1.00	Very limited   Slope	1.00	Very limited   Slope	1.00
		Slow water	0.26	Slow water	0.26	Slow water	0.26
		movement		movement	 	movement	
185C:	0.5	 	ļ	 	ļ	 	İ
Onoville	85	Very limited   Depth to	1.00	Very limited   Large stones	1.00	Very limited   Depth to	1.00
	į	saturated zone	į	content		saturated zone	į
		Large stones content	1.00	Depth to saturated zone	0.88	Slope 	1.00
		Slope	0.63	Slope	0.63	Large stones content	1.00
		Slow water movement	0.49	Slow water movement	0.49	Slow water movement	0.49
185D:		 		 		 	
Onoville	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Slope 	1.00	Depth to saturated zone	1.00
		Slope	1.00	Large stones content	1.00	Slope	1.00
		Large stones	1.00	Depth to	0.88	Large stones	1.00
		content	0.49	saturated zone	0.49	content Slow water	0.49
	İ	movement		movement		movement	

Table 11.—Camp Areas, Picnic Areas, and Playgrounds—Continued

Map symbol and soil name	Pct. of map unit	<u> </u>		Picnic areas		Playgrounds   	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
187B: Shongo	     80   	  Very limited   Depth to   saturated zone   Large stones	    1.00    1.00	  Very limited   Depth to   saturated zone   Large stones	    1.00    1.00	  Very limited   Depth to   saturated zone   Large stones	1.00
	       	content   Slow water   movement	  0.49     	content   Slow water   movement	  0.49     	content Slope Slow water movement	0.49
187C: Shongo	   80           	Very limited   Depth to   saturated zone   Large stones   content   Slope   Slow water   movement	  1.00    1.00    0.63    0.49	Very limited   Depth to   saturated zone   Large stones   content   Slope   Slow water   movement	1.00	Very limited   Depth to   saturated zone   Slope   Large stones   content   Slow water   movement	1.00
188B: Cavode	   85         	Very limited   Depth to   saturated zone   Slow water   movement	      1.00    0.96	   Very limited   Depth to   saturated zone   Slow water   movement	      0.99    0.96	Very limited   Depth to   saturated zone   Slope     Slow water   movement	    1.00    1.00    0.96
188C: Cavode	   85         	Very limited   Depth to   saturated zone   Slow water   movement   Slope	1.00	Very limited   Depth to   saturated zone   Slow water   movement   Slope	0.99	Very limited   Depth to   saturated zone   Slope   Slow water   movement	  1.00    1.00    0.96
188D: Cavode	   85         	   Very limited   Depth to   saturated zone   Slope     Slow water   movement	1.00		1.00	   Very limited   Depth to   saturated zone   Slope     Slow water   movement	    1.00    1.00    0.96
189B: Portville	   80       	Very limited Depth to saturated zone Large stones content Slow water movement	1.00	Very limited   Depth to   saturated zone   Large stones   content   Slow water   movement	1.00	Very limited   Depth to   saturated zone   Large stones   content   Slope	1.00
	     				     	Slow water   movement   Gravel content	0.49    0.18

Table 11.—Camp Areas, Picnic Areas, and Playgrounds—Continued

Map symbol and soil name	Pct. of map unit	<u> </u>		Picnic areas   		   Playgrounds   	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
189C: Portville	     80	    Very limited		    Very limited		    Very limited	
POLCVILLE	   	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Large stones content	1.00	Large stones content	1.00 	Slope 	1.00
		Slope	0.63	Slope	0.63	Large stones content	1.00
	į į	Slow water movement	0.49	Slow water movement	0.49	Slow water movement	0.49
	j I	İ	j I	 	j I	Gravel content	0.18
195C: Mandy	   85	  Very limited	j I	  Very limited	į į	  Very limited	j i
-	İ	Large stones	1.00	Large stones	1.00	Large stones	1.00
	i	Slope	0.04	Slope	0.04	Slope	1.00
	į	Gravel content	0.04	Gravel content	0.04	Gravel content	1.00
	   	 				Depth to bedrock   Large stones   content	0.20
195D: Mandy		    -		    Vom: limited		 	
mandy	85	Very limited   Slope	1.00	Very limited   Slope	1.00	Very limited   Slope	1.00
	İ	Large stones	1.00	Large stones content	1.00	Large stones content	1.00
	İ	Gravel content	0.04	Gravel content	0.04	Gravel content	1.00
						Depth to bedrock   Large stones   content	0.20
195E:		   		 		 	
Mandy	85	Very limited   Slope	1.00	Very limited   Slope	1.00	Very limited   Slope	1.00
	İ	Large stones content	1.00	Large stones content	1.00	Large stones content	1.00
	İ	Gravel content	0.04	Gravel content	0.04	Gravel content	1.00
	   			 		Depth to bedrock Large stones content	0.20
199C:							
Buchanan	85   	Very limited   Large stones   content	1.00	Very limited   Large stones   content	1.00	Very limited   Slope 	1.00
	İ	Slow water   movement	0.96	Slow water   movement	0.96	Large stones content	1.00
	İ	Depth to saturated zone	0.67	Slope	0.63	Slow water   movement	0.96
	į į	Slope	0.63	Depth to saturated zone	0.35	Depth to saturated zone	0.67
	į į	İ	<u> </u>	<u> </u> 	İ	Gravel content	0.18

Table 11.—Camp Areas, Picnic Areas, and Playgrounds—Continued

Map symbol and soil name	Pct. of map unit			Picnic areas		Playgrounds	
	.	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
199D: Buchanan	     85	    Very limited   Slope	1.00	    Very limited   Slope	1.00	    Very limited   Slope	1.00
	İ	Large stones content Slow water	1.00	Large stones content Slow water	1.00	Large stones content Slow water	1.00
		movement   Depth to   saturated zone	0.67	movement Depth to saturated zone	0.35	movement Depth to saturated zone Gravel content	0.67
289B:							
Ceres	85     	Somewhat limited   Gravel content 	0.07	Somewhat limited   Gravel content 	0.07	Very limited   Slope   Gravel content 	1.00
289C: Ceres	   85 	  Somewhat limited   Slope   Gravel content	0.63	  Somewhat limited   Slope   Gravel content	0.63	  Very limited   Slope   Gravel content	1.00
289D:		Graver content   		Graver content   		Graver Content   	
Ceres	85   	Very limited   Slope   Gravel content	1.00	Very limited   Slope   Gravel content	1.00	Very limited   Slope   Gravel content	1.00
289E: Ceres	85	  Very limited   Slope   Gravel content	1.00	  Very limited   Slope   Gravel content	1.00	  Very limited   Slope   Gravel content	1.00
289F: Ceres	     85 	  Very limited   Slope   Gravel content	1.00	  Very limited   Slope   Gravel content	1.00	  Very limited   Slope   Gravel content	    1.00  1.00
400: Wakeville	80	     Very limited   Depth to   saturated zone   Flooding	    1.00    1.00	     Very limited   Depth to   saturated zone	      0.99 	   Very limited   Depth to   saturated zone   Flooding	    1.00    0.60
496B: Gilpin	    -   85	    Somewhat limited   Depth to	0.01	    Somewhat limited   Gravel content	0.01	    Very limited   Slope	1.00
		saturated zone Gravel content	0.01		       	Gravel content Depth to bedrock Depth to saturated zone	  1.00  0.10  0.01
496C: Gilpin	    -   85   	  Somewhat limited   Slope   Gravel content	0.63	  Somewhat limited   Slope   Gravel content	  0.63  0.01	  Very limited   Slope   Gravel content   Depth to bedrock	  1.00  1.00  0.10
496D: Gilpin	   85 	  Very limited   Slope   Gravel content	1.00	  Very limited   Slope   Gravel content	    1.00  0.01	  Very limited   Slope   Gravel content   Depth to bedrock	  1.00  1.00  0.10

Table 11.—Camp Areas, Picnic Areas, and Playgrounds—Continued

Map symbol and soil name	  Pct.   of  map  unit			Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
496E: Gilpin	     85     	  Very limited   Slope   Gravel content 	    1.00  0.01	  Very limited   Slope   Gravel content 	    1.00  0.01	  Very limited   Slope   Gravel content   Depth to bedrock	  1.00  1.00  0.10
496F: Gilpin	   85     	  Very limited   Slope   Gravel content	    1.00  0.01	  Very limited   Slope   Gravel content	    1.00  0.01	  Very limited   Slope   Gravel content   Depth to bedrock	  1.00  1.00  0.10
497D: Rayne	     80 	  Very limited   Slope   Gravel content	    1.00  0.08	  Very limited   Slope   Gravel content	    1.00  0.08	  Very limited   Slope   Gravel content	1.00
497E: Rayne	   80 	  Very limited   Slope   Gravel content	  1.00  0.08	  Very limited   Slope   Gravel content	  1.00  0.08	  Very limited   Slope   Gravel content	1.00
497F: Rayne	     80 	  Very limited   Slope   Gravel content	    1.00  0.08	  Very limited   Slope   Gravel content	    1.00  0.08	  Very limited   Slope   Gravel content	1.00
498E: Rayne	   80     	  Very limited   Slope   Large stones   content   Gravel content	  1.00  1.00    0.08	  Very limited   Slope   Large stones   content   Gravel content	  1.00  1.00    0.08	  Very limited   Slope   Large stones   content   Gravel content	  1.00  1.00    1.00
800: Holderton	     80     	  Very limited   Depth to   saturated zone   Flooding	    1.00    1.00	  Very limited   Depth to   saturated zone 	      0.99   	  Very limited   Depth to   saturated zone   Flooding	1.00
PG: Pits, gravel	85	  Not rated		  Not rated		  Not rated 	
Ur: Urban land	85	  Not rated		  Not rated		  Not rated	
W: Water	  100	    Not rated 		    Not rated 		    Not rated 	

Table 12.—Paths, Trails, and Golf Fairways

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit		s	Off-road motorcycle trails		Golf fairways   	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1: Udifluvents	   40         	  Somewhat limited   Too sandy   Flooding	      0.50  0.40 	  Somewhat limited   Too sandy   Flooding	    0.50  0.40 	   Very limited   Flooding   Gravel content   Droughty   Large stones   content	  1.00  0.22  0.01  0.01
Fluvaquents	35         	Very limited Depth to saturated zone Flooding Too sandy	  1.00    0.40    0.02	Very limited   Depth to   saturated zone   Flooding   Too sandy	  1.00    0.40    0.02	Very limited   Flooding	1.00
2: Hamlin	     85 	<u>-</u> 		    Not limited		    Somewhat limited   Flooding	0.60
3: Tioga	     85 	  Not limited 		  Not limited 		  Somewhat limited   Flooding	0.60
4: Teel	   85     	   Somewhat limited   Depth to   saturated zone	0.08	  Somewhat limited   Depth to   saturated zone	0.08	  Somewhat limited   Flooding     Depth to   saturated zone	0.60
5: Wayland	     85     	Very limited  Depth to  saturated zone  Flooding	    1.00    0.40	saturated zone	1.00	Very limited   Flooding   Depth to   saturated zone	1.00
6A: Wyalusing	     85   	  Very limited   Depth to   saturated zone   Flooding	    1.00    0.40	  Very limited   Depth to   saturated zone   Flooding	1.00	Very limited   Flooding   Depth to	1.00
7A: Philo	       85     	  Somewhat limited   Depth to   saturated zone	0.08	  Somewhat limited   Depth to   saturated zone	             	saturated zone 	0.60

Table 12.—Paths, Trails, and Golf Fairways—Continued

Map symbol and soil name	Pct. of map unit	Paths and trail	s	Off-road motorcycle trai	ls	Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
8: Middlebury	     85   	  Somewhat limited   Depth to   saturated zone	      0.08	  Somewhat limited   Depth to   saturated zone	    0.08	Somewhat limited Flooding Depth to	0.60
9: Pawling	       85     	    Somewhat limited   Depth to   saturated zone	      0.08	    Somewhat limited   Depth to   saturated zone	        0.08	saturated zone    Somewhat limited   Flooding     Depth to   saturated zone	      0.60    0.43
10: Atkins	     85     	  Very limited   Depth to   saturated zone   Flooding	    1.00    0.40	  Very limited   Depth to   saturated zone   Flooding	    1.00    0.40	Very limited Flooding Depth to saturated zone	    1.00    1.00
11B: Ischua	     85     	Somewhat limited   Depth to   saturated zone	      0.08   	Somewhat limited   Depth to   saturated zone	      0.08   	Somewhat limited   Depth to bedrock     Depth to   saturated zone   Gravel content	    0.65    0.43    0.01
11C: Ischua	     85     	  Somewhat limited   Depth to   saturated zone	0.08	  Somewhat limited   Depth to   saturated zone	0.08	Somewhat limited Depth to bedrock Slope Depth to saturated zone	    0.65    0.63  0.43
11D: Ischua	     85         	  Somewhat limited   Slope   Depth to   saturated zone	0.50	  Somewhat limited   Depth to   saturated zone	0.08	Gravel content  Very limited Slope  Depth to bedrock  Depth to saturated zone	0.01      1.00    0.65    0.43
11E: Ischua	     85         	  Very limited   Slope   Depth to   saturated zone	      1.00  0.08	  Somewhat limited   Slope   Depth to   saturated zone	      0.22  0.08   	Gravel content 	0.01      1.00  0.65    0.43 

Table 12.—Paths, Trails, and Golf Fairways—Continued

Map symbol and soil name	Pct. of map unit		s	Off-road motorcycle trai	ls	Golf fairways		
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	
11F: Ischua	   85         	  Very limited   Slope   Depth to   saturated zone	    1.00  0.08 	  Very limited   Slope   Depth to   saturated zone	  1.00  0.08	Very limited   Slope   Depth to bedrock   Depth to saturated zone   Gravel content	  1.00  0.65    0.43 	
12B: Franklinville	     85 	    Not limited 		    Not limited 		    Somewhat limited   Gravel content	0.01	
12C: Franklinville	     85   	  Not limited 		  Not limited   		  Somewhat limited   Slope   Gravel content	0.63	
12D: Franklinville	   85   	  Somewhat limited   Slope	0.50	  Not limited 		  Very limited   Slope   Gravel content	1.00	
12E: Franklinville	   85 	  Very limited   Slope	1.00	  Somewhat limited   Slope	0.22	  Very limited   Slope   Gravel content	1.00	
14B: Hornellsville	     85     	  Somewhat limited   Depth to   saturated zone	      0.99   	  Somewhat limited   Depth to   saturated zone	      0.99 	  Very limited   Depth to   saturated zone   Depth to bedrock	0.99	
14C: Hornellsville	   85       	  Very limited   Water erosion     Depth to   saturated zone	1.00	  Very limited   Water erosion     Depth to   saturated zone	  1.00    0.99	   Very limited   Depth to   saturated zone   Slope   Depth to bedrock	0.99	
15B: Willdin	   85   85     	  Somewhat limited   Depth to   saturated zone	      0.32     	  Somewhat limited   Depth to   saturated zone	      0.32     	Somewhat limited   Depth to   saturated zone   Droughty   Gravel content   Large stones   content	   0.68   0.42   0.04   0.01	
15C: Willdin	   85             	Somewhat limited   Depth to   saturated zone	      0.32       	Somewhat limited   Depth to   saturated zone	0.32	Somewhat limited   Depth to   saturated zone   Slope   Droughty   Gravel content   Large stones   content	   0.68   0.63   0.42   0.04	

Table 12.—Paths, Trails, and Golf Fairways—Continued

Map symbol and soil name	Pct. of map unit	Paths and trail	.s	Off-road motorcycle trai	ls	Golf fairways   	•
		Rating class and   limiting features	Value	Rating class and   limiting features	Value	Rating class and   limiting features	Value
15D: Willdin	     85 	  Somewhat limited   Slope	0.50	  Somewhat limited   Depth to   saturated zone	0.32	  Very limited   Slope	1.00
	         	Depth to saturated zone	0.32			Depth to saturated zone Droughty Gravel content Large stones content	0.68   0.42   0.04   0.01
16A: Almond	   80 	  Somewhat limited   Depth to   saturated zone	0.99	  Somewhat limited   Depth to   saturated zone	    0.99 	  Very limited   Depth to   saturated zone	0.99
16B: Almond	   80   	Somewhat limited   Depth to   saturated zone	0.99	Somewhat limited   Depth to   saturated zone	    0.99 	Very limited   Depth to   saturated zone	0.99
16C: Almond	   80   	Somewhat limited   Depth to   saturated zone	0.99	Somewhat limited   Depth to   saturated zone	    0.99 	  Very limited   Depth to   saturated zone   Slope	0.99
17B: Salamanca	     80 	  Somewhat limited   Depth to   saturated zone	0.08	  Somewhat limited   Depth to   saturated zone	    0.08	  Somewhat limited   Depth to   saturated zone	0.43
17C: Salamanca	   80     	  Somewhat limited   Depth to   saturated zone	0.08	  Somewhat limited   Depth to   saturated zone	    0.08   	  Somewhat limited   Slope   Depth to   saturated zone	0.63
17D: Salamanca	     80   	  Somewhat limited   Slope       Depth to   saturated zone	0.50	  Somewhat limited   Depth to   saturated zone	      0.08 	  Very limited   Slope     Depth to   saturated zone	1.00
17E: Salamanca	     80   	  Very limited   Slope   Depth to   saturated zone	1.00	  Somewhat limited   Slope   Depth to   saturated zone	    0.22  0.08	  Very limited   Slope   Depth to   saturated zone	1.00
18A: Pope	     85 	  Not limited 		  Not limited 		  Somewhat limited   Flooding	0.60
19A: Olean	     85   	  Somewhat limited   Depth to   saturated zone	0.08	  Somewhat limited   Depth to   saturated zone	    0.08	  Somewhat limited   Depth to   saturated zone	0.43

Table 12.—Paths, Trails, and Golf Fairways—Continued

Map symbol and soil name	Pct. of map		s	Off-road motorcycle trai	ls	Golf fairways	
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
19B: Olean	     85   	   Somewhat limited   Depth to   saturated zone	      0.08	  Somewhat limited   Depth to   saturated zone	      0.08	  Somewhat limited   Depth to   saturated zone	0.43
20A: Unadilla	     85 	    Not limited 		    Not limited 		    Not limited 	
20B: Unadilla	   85 	  Not limited 	   	  Not limited 		  Not limited 	   
20C: Unadilla	   85 	  Very limited   Water erosion	    1.00	  Very limited   Water erosion	    1.00	  Somewhat limited   Slope	0.63
20D: Unadilla	   85 	  Very limited   Water erosion   Slope	    1.00  0.50	  Very limited   Water erosion	    1.00	  Very limited   Slope	1.00
22A: Allard	     85	  Not limited	     	  Not limited		  Not limited	
22B: Allard	     85	  Not limited	     	  Not limited		  Not limited	
25A: Chenango	     85   	  Not limited	       	  Not limited 	       	  Somewhat limited   Gravel content   Droughty	0.06
25B: Chenango	     85   	  Not limited	       	  Not limited 	       	  Somewhat limited   Gravel content   Droughty	0.06
25C: Chenango	     85   	  Not limited 	         	  Not limited   		  Somewhat limited   Slope   Gravel content   Droughty	0.63
25D: Chenango	   85   	  Somewhat limited   Slope	    0.50 	  Not limited 		  Very limited   Slope   Gravel content   Droughty	  1.00  0.06  0.05
25E: Chenango	     80   	  Very limited   Slope	1.00	  Somewhat limited   Slope 	      0.22 	  Very limited   Slope   Gravel content   Droughty	    1.00  0.06  0.05
25F: Chenango	     80   	  Very limited   Slope 	      1.00 	  Very limited   Slope 	      1.00	  Very limited   Slope   Gravel content   Droughty	    1.00  0.06  0.05

Table 12.—Paths, Trails, and Golf Fairways—Continued

Map symbol and soil name	Pct. of map unit	Paths and trail	s	Off-road motorcycle trai	.ls	Golf fairways   	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
26A: Chenango, fan	     80   	  Not limited   		  Not limited     		  Somewhat limited   Gravel content   Droughty	0.27
26B: Chenango, fan	   80 	  Not limited  -		  Not limited  - 		  Somewhat limited   Gravel content   Droughty	0.27
27A: Castile	   85   	   Somewhat limited   Depth to   saturated zone	0.08	  Somewhat limited   Depth to   saturated zone	0.08	  Somewhat limited   Gravel content     Depth to	0.68
					   	saturated zone Droughty	0.24
27B: Castile	   85   	  Somewhat limited   Depth to   saturated zone	0.08	  Somewhat limited   Depth to   saturated zone	0.08	  Somewhat limited   Gravel content     Depth to	0.68
			İ İ		j   	saturated zone Droughty	0.24
28A: Scio	   85   	Somewhat limited   Depth to   saturated zone	0.08	  Somewhat limited   Depth to   saturated zone	0.08	  Somewhat limited   Depth to   saturated zone	0.43
29A: Chenango	   85 	  Not limited 		  Not limited 		Somewhat limited   Gravel content   Droughty	0.08
29B: Chenango	   85 	  Not limited 		  Not limited 		  Somewhat limited   Gravel content   Droughty	0.08
29C: Chenango	     85   	  Not limited   		  Not limited   		  Somewhat limited   Slope   Gravel content   Droughty	0.63
29D: Chenango	     85   	  Somewhat limited   Slope	0.50	  Not limited   		  Very limited   Slope   Gravel content   Droughty	  1.00  0.08  0.05
29E: Chenango	     85   	  Very limited   Slope	1.00	  Somewhat limited   Slope 	0.22		  1.00  0.08  0.05
31B: Collamer	     85 	  Somewhat limited   Depth to   saturated zone	0.08	  Somewhat limited   Depth to   saturated zone	0.08	  Somewhat limited   Depth to   saturated zone	0.43

Table 12.—Paths, Trails, and Golf Fairways—Continued

Map symbol and soil name	Pct. of		s	Off-road motorcycle trai	ls	Golf fairways		
- <u></u>	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	
31C: Collamer	     85   	   Very limited   Water erosion   Depth to   saturated zone	    1.00  0.08	  Very limited   Water erosion   Depth to   saturated zone	    1.00  0.08	  Somewhat limited   Slope   Depth to   saturated zone	0.63	
32A: Churchville	     85   	  Somewhat limited   Depth to   saturated zone	      0.99 	  Somewhat limited   Depth to   saturated zone	      0.99 	  Very limited   Depth to   saturated zone	0.99	
32B: Churchville	     85   	  Somewhat limited   Depth to   saturated zone	    0.99 	  Somewhat limited   Depth to   saturated zone	    0.99 	  Very limited   Depth to   saturated zone	0.99	
33A: Wallington	   85     	  Very limited   Depth to   saturated zone	    1.00 	   Very limited   Depth to   saturated zone	    1.00 	Very limited	1.00	
34: Getzville	   80 	  Very limited   Depth to   saturated zone	    1.00	  Very limited   Depth to   saturated zone	    1.00	  Very limited   Depth to   saturated zone	1.00	
35A: Rhinebeck	     80 	  Somewhat limited   Depth to   saturated zone	      0.99	  Somewhat limited   Depth to   saturated zone	      0.99	  Very limited   Depth to   saturated zone	0.99	
35B: Rhinebeck	     80   	  Somewhat limited   Depth to   saturated zone	      0.99 	  Somewhat limited   Depth to   saturated zone	      0.99 	  Very limited   Depth to   saturated zone	0.99	
35C: Rhinebeck	   80 	Water erosion	1.00	  Very limited   Water erosion	1.00	  Very limited   Depth to   saturated zone	0.99	
		Depth to saturated zone	0.99	Depth to saturated zone	0.99	Slope 	0.63	
36: Canadice	     75   	  Very limited   Depth to   saturated zone	      1.00 	  Very limited   Depth to   saturated zone	      1.00	  Very limited   Depth to   saturated zone	1.00	
37A: Tonawanda	   80   	  Somewhat limited   Depth to   saturated zone	    0.99 	  Somewhat limited   Depth to   saturated zone	    0.99 	   Very limited   Depth to   saturated zone	0.99	
37B: Tonawanda	     80   	  Somewhat limited   Depth to   saturated zone	    0.99 	  Somewhat limited   Depth to   saturated zone	    0.99 	  Very limited   Depth to   saturated zone	0.99	

Table 12.—Paths, Trails, and Golf Fairways—Continued

Map symbol and soil name	Pct. of map		s	Off-road motorcycle trai	ls	   Golf fairways 	3
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
38A: Niagara	85	  Somewhat limited   Depth to   saturated zone	      0.99	  Somewhat limited   Depth to   saturated zone	      0.99	  Very limited   Depth to   saturated zone	0.99
38B: Niagara	85	  Somewhat limited   Depth to   saturated zone	    0.99 	  Somewhat limited   Depth to   saturated zone	    0.99 	  Very limited   Depth to   saturated zone	0.99
39A: Halsey	   85     	  Very limited   Depth to   saturated zone   Ponding	  1.00    1.00	  Very limited   Depth to   saturated zone   Ponding	  1.00    1.00	   Very limited   Ponding     Depth to   saturated zone	1.00
40A: Williamson	85	  Somewhat limited   Depth to   saturated zone	    0.22 	  Somewhat limited   Depth to   saturated zone	    0.22 	  Somewhat limited   Depth to   saturated zone   Droughty	0.60
40B: Williamson	85	  Somewhat limited   Depth to   saturated zone	0.22	  Somewhat limited   Depth to   saturated zone	    0.22   	  Somewhat limited   Depth to   saturated zone   Droughty	0.60
40C: Williamson	   85     	  Very limited   Water erosion   Depth to   saturated zone	  1.00  0.22 	   Very limited   Water erosion   Depth to   saturated zone	  1.00  0.22 	Somewhat limited   Slope   Depth to   saturated zone   Droughty	0.63
41A: Barcelona	85	  Somewhat limited   Depth to   saturated zone	      0.99 	  Somewhat limited   Depth to   saturated zone	      0.99 	  Very limited   Depth to   saturated zone	0.99
41B: Barcelona	85	Somewhat limited   Depth to   saturated zone	0.99	  Somewhat limited   Depth to   saturated zone	    0.99 	  Very limited   Depth to   saturated zone	0.99
42A: Elnora	80	  Somewhat limited   Depth to   saturated zone	    0.08   	  Somewhat limited   Depth to   saturated zone	    0.08   	  Somewhat limited   Depth to   saturated zone   Droughty	0.43
42B: Elnora	80	Somewhat limited   Depth to   saturated zone	0.08	  Somewhat limited   Depth to   saturated zone	    0.08 	Somewhat limited   Depth to   saturated zone   Droughty	0.43

Table 12.—Paths, Trails, and Golf Fairways—Continued

Map symbol and soil name	Pct. of map unit	Paths and trail	s	Off-road motorcycle trai	ls	   Golf fairways   	1
	unit	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
43: Canandaigua, silt loam	       80     	  Very limited   Depth to   saturated zone   Ponding	1.00	  Very limited   Depth to   saturated zone   Ponding	      1.00    1.00	  Very limited   Ponding     Depth to   saturated zone	1.00
44: Canandaigua, mucky silt loam	     85     	   Very limited   Depth to   saturated zone   Ponding	        1.00   	   Very limited   Depth to   saturated zone   Ponding	      1.00    1.00	   Very limited   Ponding   Depth to   saturated zone	1.00
45: Canandaigua, acid substratum	     80     	   Very limited   Depth to   saturated zone   Ponding	        1.00   	   Very limited   Depth to   saturated zone   Ponding	      1.00    1.00	   Very limited   Ponding   Depth to   saturated zone	1.00
46: Swormville	     85 	  Somewhat limited   Depth to   saturated zone	0.99	  Somewhat limited   Depth to   saturated zone	0.99	  Very limited   Depth to   saturated zone	0.99
47A: Minoa	     80 	  Somewhat limited   Depth to   saturated zone	      0.99	  Somewhat limited   Depth to   saturated zone	      0.99	  Very limited   Depth to   saturated zone	0.99
48A: Colonie	80	  Not limited		  Not limited		  Somewhat limited   Droughty	0.29
48B: Colonie	80	  Not limited		  Not limited		  Somewhat limited   Droughty	0.29
48C: Colonie	80	  Not limited 		  Not limited 		  Somewhat limited   Slope   Droughty	0.63
49A: Red Hook	   85   	  Somewhat limited   Depth to   saturated zone	    0.99 	  Somewhat limited   Depth to   saturated zone	    0.99 	Very limited   Depth to   saturated zone	0.99
50A: Canaseraga	     85   	  Somewhat limited   Depth to   saturated zone	    0.44 	  Somewhat limited   Depth to   saturated zone	    0.44 	  Somewhat limited   Depth to   saturated zone	0.75
50B: Canaseraga	     85   	  Somewhat limited   Depth to   saturated zone	      0.44 	  Somewhat limited   Depth to   saturated zone	      0.44 	  Somewhat limited   Depth to   saturated zone	    0.75

Table 12.—Paths, Trails, and Golf Fairways—Continued

Map symbol and soil name	Pct. of	Paths and trail	s	Off-road motorcycle trai	ls	Golf fairways   	ı
	unit	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
50C: Canaseraga	     85     	  Very limited   Water erosion     Depth to   saturated zone	    1.00    0.44	  Very limited   Water erosion     Depth to   saturated zone	    1.00    0.44	  Somewhat limited   Depth to   saturated zone   Slope	    0.75    0.63
51B: Chadakoin	85	    Not limited		    Not limited		    Not limited	
51C: Chadakoin	85	  Not limited		  Not limited		  Somewhat limited   Slope	0.63
51D: Chadakoin	     85 	  Somewhat limited   Slope	0.50	  Not limited		  Very limited   Slope	1.00
51E: Chadakoin	85	  Very limited   Slope	1.00	  Somewhat limited   Slope	0.22	  Very limited   Slope	1.00
51F: Chadakoin	85	  Very limited   Slope	1.00	  Very limited   Slope	1.00	  Very limited   Slope	1.00
52B: Valois	85	  Not limited 		  Not limited		  Somewhat limited   Gravel content	0.06
52C: Valois	     85   	  Not limited 		  Not limited 		  Somewhat limited   Slope   Gravel content	0.63
52D: Valois	     80 	  Somewhat limited   Slope	    0.50	  Not limited 		  Very limited   Slope   Gravel content	1.00
52E: Valois	     80 	  Very limited   Slope	      1.00	  Somewhat limited   Slope	      0.22	  Very limited   Slope   Gravel content	1.00
52F: Valois	     80 	    Very limited   Slope 	      1.00	    Very limited   Slope 	1.00	  Very limited   Slope   Gravel content	  1.00  0.06
53C: Valois	     30 	    Not limited   		    Not limited   	     	    Somewhat limited   Gravel content   Slope	    0.06  0.04
Volusia	   25       	  Very limited   Depth to   saturated zone	    1.00     	  Very limited   Depth to   saturated zone 	    1.00     	Very limited   Depth to   saturated zone   Droughty   Slope   Gravel content	  1.00    0.98  0.04  0.01

Table 12.—Paths, Trails, and Golf Fairways—Continued

Map symbol and soil name	Pct. of map		s	Off-road motorcycle trai	ls	Golf fairways	
	unit	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
53C: Mardin	   20   20   	  Somewhat limited   Depth to   saturated zone	      0.92     	  Somewhat limited   Depth to   saturated zone	      0.92     	  Somewhat limited   Depth to   saturated zone   Droughty   Slope	    0.96    0.96  0.04
55A: Darien	   85   	  Somewhat limited   Depth to   saturated zone	    0.99 	  Somewhat limited   Depth to   saturated zone	    0.99 	  Very limited   Depth to   saturated zone	0.99
55B: Darien	   85   	  Somewhat limited   Depth to   saturated zone	    0.99 	  Somewhat limited   Depth to   saturated zone	    0.99 	  Very limited   Depth to   saturated zone	0.99
55C: Darien	   85   	  Somewhat limited   Depth to   saturated zone	    0.99 	  Somewhat limited   Depth to   saturated zone	    0.99 	  Very limited   Depth to   saturated zone   Slope	0.99
56B: Chautauqua	     80 	  Somewhat limited   Depth to   saturated zone	      0.08	  Somewhat limited   Depth to   saturated zone	      0.08	  Somewhat limited   Depth to   saturated zone	0.43
56C: Chautauqua	   80     	  Somewhat limited   Depth to   saturated zone	    0.08   	  Somewhat limited   Depth to   saturated zone	    0.08   	  Somewhat limited   Slope     Depth to   saturated zone	0.63
56D: Chautauqua	     80     	  Somewhat limited   Slope     Depth to   saturated zone	0.50	  Somewhat limited   Depth to   saturated zone	0.08	   Very limited   Slope     Depth to   saturated zone	1.00
57A: Busti	     80 	  Somewhat limited   Depth to   saturated zone	      0.99	  Somewhat limited   Depth to   saturated zone	      0.99	  Very limited   Depth to   saturated zone	0.99
57B: Busti	     80 	  Somewhat limited   Depth to   saturated zone	      0.99 	  Somewhat limited   Depth to   saturated zone	      0.99 	  Very limited   Depth to   saturated zone	0.99
57C: Busti	   80   	  Somewhat limited   Depth to   saturated zone	    0.99 	  Somewhat limited   Depth to   saturated zone	    0.99 	  Very limited   Depth to   saturated zone   Slope	0.99

Table 12.—Paths, Trails, and Golf Fairways—Continued

Map symbol and soil name	Pct. of map unit		s	Off-road motorcycle trai	   Golf fairways   	ı	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
58B: Rushford	80	  Somewhat limited   Depth to   saturated zone	0.14	  Somewhat limited   Depth to   saturated zone	    0.14	  Somewhat limited   Droughty	0.69
				 	   	Depth to   saturated zone   Gravel content	0.52
58C: Rushford	80	  Somewhat limited   Depth to   saturated zone	0.14	  Somewhat limited   Depth to   saturated zone	      0.14	  Somewhat limited   Droughty	0.69
					       	Slope Depth to saturated zone Gravel content	0.63
59B: Yorkshire	   85     	   Somewhat limited   Depth to   saturated zone	    0.62   	  Somewhat limited   Depth to   saturated zone	    0.62   	Somewhat limited Depth to saturated zone Droughty Gravel content	0.83
59C: Yorkshire	   85   85     	  Somewhat limited   Depth to   saturated zone	             	  Somewhat limited   Depth to   saturated zone	      0.62     	  Somewhat limited   Depth to   saturated zone   Slope   Droughty   Gravel content	  0.83    0.63  0.48  0.08
59D: Yorkshire	     85       	  Somewhat limited   Depth to   saturated zone   Slope	      0.62    0.50	  Somewhat limited   Depth to   saturated zone	      0.62   	   Very limited   Slope     Depth to   saturated zone   Droughty	    1.00    0.83    0.48
60A:				 		Gravel content	0.48
Napoli	80   	Very limited Depth to saturated zone	1.00	  Very limited   Depth to   saturated zone	  1.00 	Very limited Depth to saturated zone Droughty	1.00
60B: Napoli	     80   	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	    1.00 	  Very limited   Depth to   saturated zone   Droughty	1.00
60C: Napoli	80	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone   Slope   Droughty	  1.00    0.63  0.01

Table 12.—Paths, Trails, and Golf Fairways—Continued

Map symbol and soil name	Pct. of map unit		s	Off-road   motorcycle trai 	ls	   Golf fairways   	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
60D: Napoli	   80     	   Very limited   Depth to   saturated zone   Slope	  1.00    0.50	  Very limited   Depth to   saturated zone	1.00	   Very limited   Slope   Depth to   saturated zone   Droughty	1.00
61B: Schuyler	80	  Somewhat limited   Depth to   saturated zone	      0.08	  Somewhat limited   Depth to   saturated zone	      0.08	  Somewhat limited   Depth to   saturated zone	0.43
61C: Schuyler	80	Somewhat limited   Depth to   saturated zone	    0.08   	Somewhat limited   Depth to   saturated zone	    0.08   		0.63
61D: Schuyler	   80     	Somewhat limited   Slope   Depth to   saturated zone	0.50	  Somewhat limited   Depth to   saturated zone	      0.08   	   Very limited   Slope   Depth to   saturated zone	    1.00    0.43
61E: Schuyler	80	   Very limited   Slope   Depth to   saturated zone	    1.00  0.08	Somewhat limited   Slope   Depth to   saturated zone	    0.22  0.08	   Very limited   Slope   Depth to   saturated zone	1.00
61F: Schuyler	80	  Very limited   Slope   Depth to   saturated zone	    1.00  0.08	  Very limited   Slope   Depth to   saturated zone	    1.00  0.08	  Very limited   Slope   Depth to   saturated zone	  1.00  0.43
62B: Mardin	85	  Somewhat limited   Depth to   saturated zone	    0.92 	  Somewhat limited   Depth to   saturated zone	    0.92 	  Somewhat limited   Depth to   saturated zone   Droughty	0.96
62C: Mardin	   85       	  Somewhat limited   Depth to   saturated zone	      0.92   	  Somewhat limited   Depth to   saturated zone	      0.92   	  Somewhat limited   Depth to   saturated zone   Droughty   Slope	    0.96    0.96  0.63
62D: Mardin	   85     	  Somewhat limited   Depth to   saturated zone   Slope	0.92	  Somewhat limited   Depth to   saturated zone	0.92	Very limited   Slope   Depth to   saturated zone   Droughty	  1.00    0.96 

Table 12.—Paths, Trails, and Golf Fairways—Continued

Map symbol and soil name	Pct. of map unit	Paths and trail	s	Off-road motorcycle trai	ls	Golf fairways	1
		Rating class and limiting features	Value	Rating class and   limiting features	Value	Rating class and limiting features	Value
63B: Langford	   85       	  Somewhat limited   Depth to   saturated zone	0.11	  Somewhat limited   Depth to   saturated zone	0.11	Somewhat limited   Droughty	  0.49    0.48    0.01
63C: Langford	   85   85     	  Somewhat limited   Depth to   saturated zone	               	  Somewhat limited   Depth to   saturated zone	      0.11     	Somewhat limited   Slope   Droughty   Depth to   saturated zone   Gravel content	  0.63    0.49  0.48 
63D: Langford	   85           	   Somewhat limited   Slope   Depth to   saturated zone	0.50	  Somewhat limited   Depth to   saturated zone	                 	Very limited   Slope   Droughty   Depth to   saturated zone   Gravel content	    1.00    0.49    0.48
64C: Mardin	   85         	Somewhat limited   Depth to   saturated zone   Large stones   content	        0.92    0.53	  Somewhat limited   Depth to   saturated zone   Large stones   content	      0.92    0.53	Somewhat limited   Depth to   saturated zone   Droughty   Slope	0.96
66B: Volusia	     80       	   Very limited   Depth to   saturated zone   Large stones   content	1.00	   Very limited   Depth to   saturated zone   Large stones   content	1.00	   Very limited   Depth to   saturated zone   Droughty     Gravel content	    1.00    0.98    0.01
67A: Dalton	     80   	  Very limited   Depth to   saturated zone	    1.00 	  Very limited   Depth to   saturated zone	      1.00 	  Very limited   Depth to   saturated zone   Droughty	1.00
67B: Dalton	80	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone   Droughty	1.00
68A: Volusia	80	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	1.00	   Very limited   Depth to   saturated zone   Droughty   Gravel content	  1.00    0.98  0.01

Table 12.—Paths, Trails, and Golf Fairways—Continued

Map symbol and soil name	Pct. of map unit		s	Off-road motorcycle trai	ls	Golf fairways	•
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
68B: Volusia	   80       	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	1.00	   Very limited   Depth to   saturated zone   Droughty   Gravel content	1.00
68C: Volusia	   80         	  Very limited   Depth to   saturated zone	    1.00     	   Very limited   Depth to   saturated zone	    1.00     	Very limited   Depth to   saturated zone   Droughty   Slope   Gravel content	  1.00    0.98  0.63  0.01
69A: Erie	   80     	  Very limited   Depth to   saturated zone	    1.00   	  Very limited   Depth to   saturated zone	    1.00   	   Very limited   Depth to   saturated zone   Droughty   Gravel content	1.00
69B: Erie	   80   	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	    1.00   	Very limited   Depth to   saturated zone   Droughty   Gravel content	1.00
69C: Erie	     80         	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	1.00	   Very limited   Depth to   saturated zone   Droughty   Slope   Gravel content	  1.00    1.00  0.63  0.01
71E: Mongaup	   85 	Slope	1.00	  Somewhat limited   Large stones   content	0.53	  Very limited   Slope	1.00
71F:		Large stones content	0.53	Slope	0.22           	Depth to bedrock Droughty Gravel content Large stones content	0.71    0.10  0.04  0.01
Mongaup	85               	Very limited   Slope   Large stones   content 	  1.00  0.53   	Very limited   Slope   Large stones   content 	1.00	Very limited   Slope   Depth to bedrock   Droughty   Gravel content   Large stones   content	  1.00  0.71    0.10  0.04  0.01
72B: Towerville	   80   	  Somewhat limited   Depth to   saturated zone	    0.08 	  Somewhat limited   Depth to   saturated zone	    0.08 	  Somewhat limited   Depth to   saturated zone   Depth to bedrock	0.43

Table 12.—Paths, Trails, and Golf Fairways—Continued

Map symbol and soil name	Pct. of map unit	Paths and trail	s	Off-road motorcycle trai	ls	Golf fairways   	
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
72C: Towerville	     80   	  Somewhat limited   Depth to   saturated zone	      0.08	  Somewhat limited   Depth to   saturated zone	      0.08	  Somewhat limited   Slope     Depth to	0.63
						saturated zone Depth to bedrock	
72D: Towerville	     80 	  Somewhat limited   Slope	      0.50	  Somewhat limited   Depth to   saturated zone	      0.08	  Very limited   Slope	1.00
	     	Depth to saturated zone	0.08		     	Depth to saturated zone Depth to bedrock	0.43
72E: Towerville	   80     	  Very limited   Slope   Depth to   saturated zone	  1.00  0.08	Somewhat limited   Slope   Depth to   saturated zone	  0.22  0.08 	Very limited   Slope   Depth to   saturated zone   Depth to bedrock	1.00
72F: Towerville	   80     	   Very limited   Slope   Depth to   saturated zone	1.00	   Very limited   Slope   Depth to   saturated zone	  1.00  0.08	Very limited Slope Depth to saturated zone Depth to bedrock	1.00
73B: Gretor	   80       	  Somewhat limited   Depth to   saturated zone	             	  Somewhat limited   Depth to   saturated zone	      0.99     	   Very limited   Depth to   saturated zone   Depth to bedrock   Gravel content   Droughty	    0.99    0.84  0.25  0.10
73C: Gretor	   80         	  Somewhat limited   Depth to   saturated zone	      0.99     	  Somewhat limited   Depth to   saturated zone	0.99	Very limited Depth to saturated zone Depth to bedrock Slope Gravel content Droughty	    0.99    0.84  0.63  0.25  0.10
74: Ashville	     80   	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	      1.00	  Very limited   Depth to   saturated zone	1.00
75: Alden	   85     	  Very limited   Depth to   saturated zone   Ponding	1.00	  Very limited   Depth to   saturated zone   Ponding	  1.00    1.00	Very limited Ponding Depth to saturated zone	1.00

Table 12.—Paths, Trails, and Golf Fairways—Continued

Map symbol and soil name	Pct. of map		s	Off-road motorcycle trai	ls	Golf fairways	
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
76A: Orpark	     80   	  Somewhat limited   Depth to   saturated zone	    0.99 	  Somewhat limited   Depth to   saturated zone	      0.99   	  Very limited   Depth to   saturated zone   Depth to bedrock	0.99
76B: Orpark	   80   	  Somewhat limited   Depth to   saturated zone	0.99	  Somewhat limited   Depth to   saturated zone	    0.99   	  Very limited   Depth to   saturated zone   Depth to bedrock	0.99
76C: Orpark	   80     	  Somewhat limited   Depth to   saturated zone	0.99	Somewhat limited   Depth to   saturated zone	    0.99   	  Very limited   Depth to   saturated zone   Depth to bedrock   Slope	0.99
77A: Chippewa	   80   	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone   Droughty	1.00
78A: Hornell	   80   	  Somewhat limited   Depth to   saturated zone	0.99	  Somewhat limited   Depth to   saturated zone	    0.99   	  Very limited   Depth to   saturated zone   Depth to bedrock	0.99
78B: Hornell	   80 	  Somewhat limited   Depth to   saturated zone	0.99	  Somewhat limited   Depth to   saturated zone	    0.99 	  Very limited   Depth to   saturated zone   Depth to bedrock	0.99
78C: Hornell	   80     	  Very limited   Water erosion     Depth to   saturated zone	1.00	  Very limited   Water erosion     Depth to   saturated zone	  1.00    0.99	  Very limited   Depth to   saturated zone   Slope     Depth to bedrock	  0.99    0.63    0.16
78D: Hornell	     80     	  Very limited   Water erosion   Depth to   saturated zone   Slope	1.00	  Very limited   Water erosion   Depth to   saturated zone	    1.00  0.99 	  Very limited   Slope   Depth to   saturated zone   Depth to bedrock	    1.00  0.99    0.16
78F: Hornell	   40 	  Very limited   Slope   Water erosion	  1.00  1.00	  Very limited   Water erosion   Slope	    1.00  1.00	  Very limited   Slope   Depth to   saturated zone	1.00
		Depth to saturated zone	0.99	Depth to saturated zone	0.99	Depth to bedrock	0.16

Table 12.—Paths, Trails, and Golf Fairways—Continued

Map symbol and soil name	Pct. of map unit	 	s	Off-road motorcycle trai	ls	Golf fairways	
	unic   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
78F: Hudson	     35       	  Very limited   Slope   Water erosion     Depth to   saturated zone	    1.00  1.00    0.18	   Very limited   Water erosion   Slope     Depth to   saturated zone	    1.00  1.00    0.18	   Very limited   Slope   Depth to   saturated zone	    1.00  0.56 
79B: Mongaup	     85   	    Not limited   		    Not limited   		   Somewhat limited   Depth to bedrock   Droughty   Gravel content	  0.71  0.10  0.06
79C: Mongaup	   85     	  Not limited   		  Not limited 		Somewhat limited Depth to bedrock Slope Droughty Gravel content	  0.71  0.63  0.10  0.06
79D: Mongaup	   85     	  Somewhat limited   Slope 	    0.50   	  Not limited   		Very limited Slope Depth to bedrock Droughty Gravel content	  1.00  0.71  0.10  0.06
79E: Mongaup	     85     	  Very limited   Slope   	      1.00   	  Somewhat limited   Slope   	      0.22   	   Very limited   Slope   Depth to bedrock   Droughty   Gravel content	  1.00  0.71  0.10  0.06
79F: Mongaup	   85       	  Very limited   Slope   	      1.00   	  Very limited   Slope   	    1.00   	   Very limited   Slope   Depth to bedrock   Droughty   Gravel content	  1.00  0.71  0.10  0.06
80A: Fremont	   80   	  Somewhat limited   Depth to   saturated zone	    0.99 	  Somewhat limited   Depth to   saturated zone	    0.99 	Very limited Depth to saturated zone	0.99
80B: Fremont	   80   	Somewhat limited   Depth to   saturated zone	    0.99 	  Somewhat limited   Depth to   saturated zone	    0.99 	Very limited Depth to saturated zone	0.99
80C: Fremont	   80   	Somewhat limited   Depth to   saturated zone	    0.99 	  Somewhat limited   Depth to   saturated zone	    0.99 	Very limited Depth to saturated zone Slope	0.99

Table 12.—Paths, Trails, and Golf Fairways—Continued

Map symbol and soil name	Pct. of map unit		s	Off-road motorcycle trai	ls	Golf fairways    -	
	 	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
81B: Varysburg	     85     	  Not limited   		  Not limited   		  Somewhat limited   Depth to   saturated zone   Droughty   Gravel content	    0.10    0.01  0.01
81C: Varysburg	   85       	  Not limited     	           	  Not limited     		Somewhat limited   Slope   Depth to   saturated zone   Droughty   Gravel content	    0.63  0.10    0.01  0.01
81D: Varysburg	   85         	  Somewhat limited   Slope 	      0.50     	  Not limited       		Very limited   Slope   Depth to   saturated zone   Droughty   Gravel content	   1.00   0.10   0.01   0.01
81E: Varysburg	   85       	   Very limited   Slope 	    1.00   	  Somewhat limited   Slope 	0.22	Very limited   Slope   Depth to   saturated zone   Droughty   Gravel content	  1.00  0.10    0.01  0.01
82F: Rock outcrop	50	    Not rated		    Not rated		    Not rated	
Manlius	   30   	   Very limited   Slope 	    1.00 	  Very limited   Slope 	1.00	   Very limited   Slope   Droughty   Depth to bedrock	  1.00  0.38  0.16
84B: Elko	     85     	  Somewhat limited   Depth to   saturated zone	    0.32 	  Somewhat limited   Depth to   saturated zone	0.32	  Somewhat limited   Depth to   saturated zone   Droughty	0.68
84C: Elko	   85     	Somewhat limited   Depth to   saturated zone	    0.32   	  Somewhat limited   Depth to   saturated zone	0.32	  Somewhat limited   Depth to   saturated zone   Slope   Droughty	0.68
85B: Onoville	     85   	  Somewhat limited   Depth to   saturated zone	      0.73	  Somewhat limited   Depth to   saturated zone	0.73	  Somewhat limited   Depth to   saturated zone   Droughty	    0.88    0.01

Table 12.—Paths, Trails, and Golf Fairways—Continued

Map symbol and soil name	Pct. of map	 	s	Off-road motorcycle trai	ls	Golf fairways	1
	unit	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
85C: Onoville	     85       	  Somewhat limited   Depth to   saturated zone	      0.73   	  Somewhat limited   Depth to   saturated zone	      0.73   	   Somewhat limited   Depth to   saturated zone   Slope   Droughty	    0.88    0.63  0.01
85D: Onoville	   85       	  Somewhat limited   Depth to   saturated zone   Slope	0.73	  Somewhat limited   Depth to   saturated zone	0.73	Very limited Slope Depth to saturated zone Droughty	  1.00    0.88    0.01
86B: Eldred	     85   	  Somewhat limited   Depth to   saturated zone	      0.08	  Somewhat limited   Depth to   saturated zone	      0.08	  Somewhat limited   Depth to   saturated zone	0.43
86C: Eldred	   85     	Somewhat limited   Depth to   saturated zone	    0.08   	Somewhat limited   Depth to   saturated zone	    0.08   	Somewhat limited   Slope   Depth to   saturated zone	0.63
86D: Eldred	     85     	  Somewhat limited   Slope     Depth to   saturated zone	    0.50    0.08	  Somewhat limited   Depth to   saturated zone	      0.08   	   Very limited   Slope     Depth to   saturated zone	    1.00    0.43
87B: Shongo	     80   	  Very limited   Depth to   saturated zone	      1.00	  Very limited   Depth to   saturated zone	      1.00	   Very limited   Depth to   saturated zone	1.00
87C: Shongo	   80   	  Very limited   Depth to   saturated zone	    1.00 	  Very limited   Depth to   saturated zone	    1.00 	   Very limited   Depth to   saturated zone   Slope	1.00
88A: Ivory	     85       	  Somewhat limited   Depth to   saturated zone	      0.99     	  Somewhat limited   Depth to   saturated zone	      0.99     	   Very limited   Depth to   saturated zone   Large stones   content	    0.99    0.03
88B: Ivory	   85     	  Somewhat limited   Depth to   saturated zone	    0.99   	  Somewhat limited   Depth to   saturated zone	    0.99   	   Very limited   Depth to   saturated zone   Large stones   content	0.99

Table 12.—Paths, Trails, and Golf Fairways—Continued

Map symbol and soil name	Pct. of map unit		s	Off-road motorcycle trai	ls	   Golf fairways   	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
88C: Ivory	     85 	       Water erosion	1.00	    Very limited   Water erosion	1.00	  Very limited   Depth to   saturated zone	0.99
		Depth to saturated zone	0.99	Depth to   saturated zone	0.99	Slope   Large stones   content	0.63
88D: Ivory	     85	    Very limited   Water erosion	      1.00	      Very limited   Water erosion	1.00	    Very limited	1.00
		Depth to saturated zone Slope	0.99    0.50	Depth to   saturated zone 	0.99	Depth to   saturated zone   Large stones   content	0.99
89B: Portville	     80 	  Very limited   Depth to   saturated zone	      1.00	  Very limited   Depth to   saturated zone	      1.00	  Very limited   Depth to   saturated zone	1.00
89C: Portville	   80   	  Very limited   Depth to   saturated zone	    1.00 	  Very limited   Depth to   saturated zone	    1.00 	  Very limited   Depth to   saturated zone   Slope	1.00
90A: Brinkerton	     85   	  Very limited   Depth to   saturated zone	      1.00	  Very limited   Depth to   saturated zone	      1.00	  Very limited   Depth to   saturated zone	1.00
90B: Brinkerton	   85   	  Very limited   Depth to   saturated zone	    1.00 	  Very limited   Depth to   saturated zone	    1.00 	  Very limited   Depth to   saturated zone	1.00
91A: Palms	   85 	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	1.00	  Very limited   Ponding	1.00
	     	Organic matter content Ponding	1.00	Organic matter content Ponding	1.00	Organic matter content Depth to saturated zone	1.00
92: Carlisle	     85   	  Very limited   Depth to   saturated zone   Organic matter	    1.00    1.00	  Very limited   Depth to   saturated zone   Organic matter	    1.00    1.00	  Very limited   Ponding     Organic matter	1.00
		content Ponding	1.00	content Ponding	1.00	content Depth to saturated zone	1.00

Table 12.—Paths, Trails, and Golf Fairways—Continued

Map symbol and soil name	Pct. of map unit		s	Off-road motorcycle trai	ls	   Golf fairways   	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
93: Saprists, inundated-	     85 	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	1.00	  Very limited   Ponding	1.00
		Organic matter   content   Ponding	1.00	Organic matter content Ponding	1.00    1.00	Organic matter   content   Depth to   saturated zone	1.00
94B: Frewsburg	     80   	  Somewhat limited   Depth to   saturated zone	      0.99 	  Somewhat limited   Depth to   saturated zone	      0.99 	  Very limited   Depth to   saturated zone   Depth to bedrock	0.99
94C: Frewsburg	     80   	  Somewhat limited   Depth to   saturated zone	    0.99   	  Somewhat limited   Depth to   saturated zone	      0.99   	  Very limited   Depth to   saturated zone   Slope   Depth to bedrock	0.99
95B: Mandy	     85   	    Not limited   	       	    Not limited   		  Somewhat limited   Droughty   Depth to bedrock   Gravel content	0.92
95C: Mandy	     85     	  Not limited   		  Not limited   	         	  Somewhat limited   Droughty   Slope   Depth to bedrock   Gravel content	0.92  0.63  0.20  0.06
95D: Mandy	     85     	  Somewhat limited   Slope	      0.50	  Not limited 	         	Very limited   Slope   Droughty   Depth to bedrock   Gravel content	1.00  0.92  0.20  0.06
95E: Mandy	     85     	  Very limited   Slope 	    1.00 	  Somewhat limited   Slope 	      0.22   	  Very limited   Slope   Droughty   Depth to bedrock   Gravel content	1.00  0.92  0.20  0.06
95F: Mandy	     85     	  Very limited   Slope	1.00	  Very limited   Slope	        1.00	Very limited   Slope   Droughty   Depth to bedrock   Gravel content	1.00  0.92  0.20  0.06
96B: Carrollton	     80   	  Not limited   		  Not limited   	         	  Somewhat limited   Depth to bedrock   Gravel content	0.46

Table 12.—Paths, Trails, and Golf Fairways—Continued

Map symbol and soil name	Pct. of map unit	Paths and trail	s	Off-road motorcycle trai	ls	Golf fairways	ı
	unic   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
96C: Carrollton	     80   	  Not limited   		  Not limited   		   Somewhat limited   Slope   Depth to bedrock   Gravel content	0.63
96D: Carrollton	   80     	  Somewhat limited   Slope 	    0.50 	  Not limited   		   Very limited   Slope   Depth to bedrock   Gravel content	  1.00  0.46  0.01
96E: Carrollton	   80   	  Very limited   Slope 	    1.00 	  Somewhat limited   Slope 	    0.22   	Very limited Slope Depth to bedrock Gravel content	  1.00  0.46  0.01
96F: Carrollton	   80   	  Very limited   Slope 	    1.00 	  Very limited   Slope	    1.00   	Very limited Slope Depth to bedrock Gravel content	  1.00  0.46  0.01
97B: Kinzua	   85 	  Not limited 	     	  Not limited 	     	  Somewhat limited   Gravel content	0.01
97C: Kinzua	     85   	  Not limited 	       	  Not limited 		Somewhat limited   Slope   Gravel content	0.63
97D: Kinzua	   85 	  Somewhat limited   Slope	    0.50	  Not limited 		Very limited Slope Gravel content	1.00
97E: Kinzua	     85   	  Very limited   Slope	    1.00	  Somewhat limited   Slope	    0.22 	Very limited Slope Gravel content	1.00
97F: Kinzua	   85 	  Very limited   Slope	    1.00	  Very limited   Slope	    1.00 	Very limited Slope Gravel content	1.00
98D: Kinzua	     85     	  Very limited   Large stones   content   Slope	1.00	  Very limited   Large stones   content	1.00	   Very limited   Slope   Gravel content	1.00
98E: Kinzua	   85   	   Very limited   Slope     Large stones   content	  1.00    1.00	   Very limited   Large stones   content   Slope	  1.00    0.22	Very limited Slope Gravel content	1.00

Table 12.—Paths, Trails, and Golf Fairways—Continued

Map symbol and soil name	Pct. of map	Paths and trail	s	Off-road motorcycle trai	ls	Golf fairways   	
	unit	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
99B: Buchanan	     85 	  Somewhat limited   Depth to   saturated zone	      0.04	  Somewhat limited   Depth to   saturated zone	      0.04	  Somewhat limited   Depth to   saturated zone	0.35
99C: Buchanan	     85     	  Somewhat limited   Depth to   saturated zone	    0.04   	  Somewhat limited   Depth to   saturated zone	0.04	  Somewhat limited   Slope     Depth to   saturated zone	0.63
99D: Buchanan	   85   	  Somewhat limited   Slope     Depth to   saturated zone	    0.50    0.04	  Somewhat limited   Depth to   saturated zone	      0.04   	  Very limited   Slope   Depth to   saturated zone	    1.00    0.35
100: Udorthents	     85	    Not rated	   	    Not rated		    Not rated	
101: Udorthents, refuse substratum	       90	      Not rated	       	      Not rated		      Not rated	
102C: Mandy	   40   	  Not limited 	         	  Not limited     		Somewhat limited   Droughty   Depth to bedrock   Gravel content   Slope	0.92  0.20  0.06  0.04
Rock outcrop	   35 	  Not rated 	   	  Not rated 		  Not rated 	
103C: Knapp Creek	   40 	  Not limited   	     	  Not limited   	     	  Somewhat limited   Slope   Droughty	0.04
Rock outcrop	   35 	  Not rated 	   	  Not rated 	   	  Not rated 	
104B: Flatiron	   80 	  Very limited   Large stones   content	    1.00	  Very limited   Large stones   content	1.00	  Somewhat limited   Droughty	0.02
104C: Flatiron	     80   	  Very limited   Large stones   content	      1.00	  Very limited   Large stones   content	      1.00	  Somewhat limited   Slope       Droughty	0.63
104D: Flatiron	     80   	  Very limited   Large stones   content   Slope	      1.00    0.50	  Very limited   Large stones   content	      1.00 	  Very limited   Slope     Droughty	1.00

Table 12.—Paths, Trails, and Golf Fairways—Continued

Map symbol and soil name	Pct. of map		s	Off-road motorcycle trai	ls	Golf fairways	
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
104E: Flatiron	80	  Very limited   Slope 	1.00	  Very limited   Large stones   content	1.00	  Very limited   Slope 	1.00
		Large stones content	1.00	Slope	0.22	Droughty	0.02
108D: Hartleton	   85       	  Somewhat limited   Slope 	    0.50   	  Not limited   		   Very limited   Slope   Droughty   Large stones   content	    1.00  0.10  0.01
108E: Hartleton	   85     	  Very limited   Slope 	  1.00   	   Somewhat limited   Slope 	0.22	Very limited Slope Droughty Large stones content	  1.00  0.10  0.01
108F: Hartleton	   85       	  Very limited   Slope 	    1.00   	  Very limited   Slope	1.00	   Very limited   Slope   Droughty   Large stones   content	  1.00  0.10  0.01
131: Lamson	     85   	  Very limited   Depth to   saturated zone	    1.00	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	1.00
132B: Wiscoy	80	  Very limited   Depth to   saturated zone	    1.00 	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone   Droughty	1.00
132C: Wiscoy	   80     	  Very limited   Depth to   saturated zone	    1.00   	   Very limited   Depth to   saturated zone	  1.00 	   Very limited   Depth to   saturated zone   Droughty   Slope	1.00
135C: Hudson	   85     	   Very limited   Water erosion   Depth to   saturated zone	    1.00  0.18	   Very limited   Water erosion   Depth to   saturated zone	  1.00  0.18	   Somewhat limited   Slope   Depth to   saturated zone	0.63
135D: Hudson	   85   	  Very limited   Water erosion   Slope	  1.00  0.50	   Very limited   Water erosion   Depth to   saturated zone	  1.00  0.18	  Very limited   Slope   Depth to   saturated zone	1.00
		Depth to saturated zone	0.18		İ		İ

Table 12.—Paths, Trails, and Golf Fairways—Continued

Map symbol and soil name	Pct. of map unit		s	Off-road motorcycle trai	ls	Golf fairways   	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
135E: Hudson	     85       	  Very limited   Slope   Water erosion     Depth to   saturated zone	    1.00  1.00    0.18	  Very limited   Water erosion   Slope     Depth to   saturated zone	    1.00  0.22    0.18	  Very limited   Slope   Depth to   saturated zone	    1.00  0.56
140D: Dunkirk	     85   	  Very limited   Water erosion   Slope	      1.00  0.50	  Very limited   Water erosion 	      1.00	  Very limited   Slope 	1.00
140E: Dunkirk	   85   	  Very limited   Slope   Water erosion	  1.00  1.00	  Very limited   Water erosion   Slope	    1.00  0.22	  Very limited   Slope	1.00
185C: Onoville	   85         	  Very limited   Large stones   content   Depth to   saturated zone	  1.00    0.73	  Very limited   Large stones   content   Depth to   saturated zone	  1.00    0.73	Somewhat limited   Depth to   saturated zone   Slope   Droughty	0.88
185D: Onoville	   85       	Very limited Large stones content Depth to saturated zone Slope	  1.00    0.73    0.50	Very limited   Large stones   content   Depth to   saturated zone	  1.00    0.73	Very limited   Slope   Depth to   saturated zone   Droughty	  1.00    0.88    0.01
187B: Shongo	     80       	   Very limited   Depth to   saturated zone   Large stones   content	    1.00    1.00	   Very limited   Depth to   saturated zone   Large stones   content	    1.00    1.00	  Very limited   Depth to   saturated zone	    1.00   
187C: Shongo	   80     	  Very limited   Depth to   saturated zone   Large stones   content	  1.00    1.00	  Very limited   Depth to   saturated zone   Large stones   content	  1.00    1.00	  Very limited   Depth to   saturated zone   Slope	1.00
188B: Cavode	     85   	  Somewhat limited   Depth to   saturated zone	      0.99 	  Somewhat limited   Depth to   saturated zone	    0.99 	  Very limited   Depth to   saturated zone	0.99
188C: Cavode	   85   	Very limited Water erosion Depth to saturated zone	  1.00    0.99	Very limited   Water erosion   Depth to   saturated zone	    1.00    0.99	  Very limited   Depth to   saturated zone   Slope	0.99

Table 12.—Paths, Trails, and Golf Fairways—Continued

Map symbol and soil name	Pct. of map unit		s	Off-road motorcycle trai	ls	   Golf fairways 	
	unit	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
188D: Cavode	     85     	Very limited   Water erosion   Depth to   saturated zone   Slope	    1.00  0.99    0.50	   Very limited   Water erosion   Depth to   saturated zone	      1.00  0.99 	  Very limited   Slope   Depth to   saturated zone	    1.00  0.99 
189B: Portville	   80       	Very limited Depth to saturated zone Large stones content	1.00	  Very limited   Depth to   saturated zone   Large stones   content	1.00	  Very limited   Depth to   saturated zone	    1.00   
189C: Portville	   80     	Very limited   Depth to   saturated zone   Large stones   content	  1.00    1.00	Very limited Depth to saturated zone Large stones content	  1.00    1.00	Very limited   Depth to   saturated zone   Slope	  1.00    0.63
195C: Mandy	   85             	   Very limited   Large stones   content 	    1.00       	Very limited Large stones content	1.00	Somewhat limited   Droughty	  0.92  0.20  0.04  0.04  0.01
195D: Mandy	   85             	Very limited   Large stones   content   Slope	  1.00    0.50	Very limited Large stones content	    1.00       	Very limited Slope Droughty Depth to bedrock Gravel content Large stones content	  1.00  0.92  0.20  0.04  0.01
195E: Mandy	   85           	  Very limited   Slope     Large stones   content	1.00	   Very limited   Large stones   content   Slope	  1.00    0.96	Very limited   Slope   Droughty   Depth to bedrock   Gravel content   Large stones	  1.00    0.92    0.20  0.04  0.01
199C: Buchanan	       85       	  Very limited   Large stones   content   Depth to   saturated zone	    1.00    0.04	  Very limited   Large stones   content   Depth to   saturated zone	    1.00    0.04	content 	0.63

Table 12.—Paths, Trails, and Golf Fairways—Continued

Map symbol and soil name	Pct. of	Paths and trail	s	Off-road motorcycle trai	ls	Golf fairways	
	unit	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
199D: Buchanan	   85         	Very limited   Large stones   content   Slope   Depth to   saturated zone	  1.00    0.50    0.04	  Very limited   Large stones   content   Depth to   saturated zone	1.00	  Very limited   Slope     Depth to   saturated zone	      1.00    0.35
289B: Ceres	     85 	    Not limited 	     	    Not limited 	     	    Somewhat limited   Gravel content	0.07
289C: Ceres	     85   	  Not limited		    Not limited 		  Somewhat limited   Slope   Gravel content	0.63
289D: Ceres	     85   	  Somewhat limited   Slope	    0.50	  Not limited 		  Very limited   Slope   Gravel content	1.00
289E: Ceres	     85 	  Very limited   Slope	      1.00	  Somewhat limited   Slope	      0.22	  Very limited   Slope   Gravel content	1.00
289F: Ceres	     85 	Very limited   Slope	      1.00	  Very limited   Slope	      1.00	  Very limited   Slope   Gravel content	  1.00  0.07
400: Wakeville	     80   	  Somewhat limited   Depth to   saturated zone	      0.99 	  Somewhat limited   Depth to   saturated zone	      0.99 	  Very limited   Depth to   saturated zone   Flooding	0.99
496B: Gilpin	     85 	  Not limited	     	  Not limited 		  Somewhat limited   Depth to bedrock   Gravel content	0.10
496C: Gilpin	     85     	  Not limited 	         	  Not limited   		  Somewhat limited   Slope   Depth to bedrock   Gravel content	  0.63  0.10  0.01
496D: Gilpin	     85   	   Somewhat limited   Slope	    0.50 	  Not limited   		  Very limited   Slope   Depth to bedrock   Gravel content	  1.00  0.10  0.01
496E: Gilpin	     85     	  Very limited   Slope	      1.00	  Somewhat limited   Slope 	    0.22 	  Very limited   Slope   Depth to bedrock   Gravel content	  1.00  0.10  0.01

Table 12.—Paths, Trails, and Golf Fairways—Continued

Map symbol and soil name	Pct. of map unit		s	Off-road motorcycle trai	ls	   Golf fairways   	
	i i	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
496F: Gilpin	     85   	  Very limited   Slope 	      1.00	  Very limited   Slope 	      1.00 	   Very limited   Slope   Depth to bedrock   Gravel content	  1.00  0.10  0.01
497D: Rayne	   80 	  Somewhat limited   Slope	0.50	  Not limited 		  Very limited   Slope   Gravel content	1.00
497E: Rayne	     80 	  Very limited   Slope	    1.00	  Somewhat limited   Slope	    0.22	  Very limited   Slope   Gravel content	1.00
497F: Rayne	     80 	    Very limited   Slope 	      1.00	    Very limited   Slope 	1.00	  Very limited   Slope   Gravel content	1.00
498E: Rayne	     80 	  Very limited   Slope	      1.00	  Very limited   Large stones   content	      1.00	  Very limited   Slope	1.00
800: Holderton	         80 	Large stones content  Somewhat limited Depth to saturated zone	1.00              0.99	Slope      Somewhat limited   Depth to   saturated zone	0.22            0.99	Gravel content 	0.08            0.99    0.60
PG: Pits, gravel	     85	    Not rated		    Not rated		    Not rated	
Ur: Urban land	     85 	    Not rated 		    Not rated 		    Not rated 	
W: Water	  100 	  Not rated 		  Not rated 		  Not rated 	

Table 13.- Wildlife Habitat

	i		Potentia	l for ha	bitat el	ements		Potenti	al as ha	bitat for-
Map symbol	Grain	<del>.</del>	Wild	101 114.				Open-	Wood-	Wetland
and soil name	and seed crops	Grasses and legumes	herba- ceous	Hard- wood trees	Conif-  erous  plants	!	Shallow water areas		land  wild-  life	wild-   life
1: Udifluvents	    Very   poor	    Very   poor	    Poor	    Poor	    Poor	    Very   poor	    Very   poor	    Poor	Poor	    Very   poor
Fluvaquents	į -	Very   poor	    Poor 	    Poor	    Poor	Good	Good	    Very   poor	Poor	Good
2: Hamlin	    Good	    Good	    Good	    Good	    Good 	    Poor 	  Very   poor	    Good	Good	    Very   poor
3: Tioga	    Good	    Good	    Good	    Good	    Good	    Poor 	  Very   poor	    Good	    Good	  Very   poor
4: Teel	    Good 	    Good	    Good 	    Good	    Good	    Poor 	    Poor	    Good	Good	    Poor 
5: Wayland	  Very   poor	Poor	  Poor	  Poor	  Poor	  Good 	  Good	  Poor	Poor	  Good 
6A: Wyalusing	    Poor	    Fair 	    Fair 	    Fair 	    Fair 	    Good	    Good 	    Fair 	    Fair	    Good 
7A: Philo	  Good 	  Good 	  Good 	  Good 	  Good 	  Poor 	  Poor 	  Good 	Good	  Poor 
8: Middlebury	  Good 	  Good 	  Good 	  Good 	  Good 	  Poor 	  Poor 	  Good 	  Good	  Poor 
9: Pawling	  Good 	  Good 	  Good 	  Good 	  Good 	  Poor 	  Poor 	  Good 	  Good 	  Poor 
Atkins	  Poor 	  Fair 	  Fair 	  Fair 	  Fair 	  Good 	  Fair 	  Fair 	Fair	  Fair   
Ischua	Good	Good	Good	Good	Good	Poor	Very   poor	Good	Good	Very   poor
11C: Ischua	  Fair 	  Good 	  Good 	  Good 	  Good 	  Very   poor	  Very   poor	  Good 	  Good	  Very   poor
11D: Ischua	    Poor 	    Fair 	    Good	    Good	    Good 	  Very   poor	  Very   poor	    Fair 	  Good	  Very   poor
11E: Ischua	    Very   poor	    Fair 	    Good 	    Good	    Good 	  Very   poor	  Very   poor	    Fair 	  Good	  Very   poor
11F: Ischua	    Very   poor	    Fair   	    Good 	    Good 	    Good 	    Very   poor	  Very   poor	    Fair   	  Good	  Very   poor
12B: Franklinville	  Fair 	  Good	  Good 	  Good	  Good 	  Very   poor	  Very   poor	  Good 	  Good	  Very   poor
12C: Franklinville	    Fair 	    Good 	    Good 	    Good 	    Good 	  Very   poor	  Very   poor	    Good 	  Good 	  Very   poor

Table 13.- Wildlife Habitat-Continued

	l	]	Potentia	Potenti	Potential as habitat for-					
Map symbol and soil name	Grain and seed	Grasses	Wild	  Hard-   wood	  Conif-  erous	  Wetland  plants	  Shallow  water	Open-	Wood-   land  wild-	Wetland  wild-   life
	crops	legumes	!	trees	plants		areas	life	life	1110
12D: Franklinville	    Poor	    Fair	    Good	    Good	    Good	  Very   poor	Very poor	    Fair	    Good	  Very   poor
12E: Franklinville	    Poor 	     <b>Fair</b>   	    Good 	    Good 	    Good 	    Very   poor	Very poor	    Fair 	  Good	  Very   poor
14B: Hornellsville	  Fair 	  Good 	  Good 	  Good 	  Good 	  Poor 	  Very   poor	  Good 	Good	  Very   poor
14C: Hornellsville	  Fair   	  Good 	  Good 	  Good 	  Good 	  Very   poor	Very poor	  Good 	Good	  Very   poor
15B: Willdin	  Fair   	  Good 	  Good 	  Fair 	  Fair 	  Poor 	Very poor	  Good 	  Fair	  Very   poor
15C: Willdin	  Fair   	  Good 	  Good 	  Fair 	  Fair 	  Very   poor	Very poor	  Good 	  Fair 	  Very   poor
15D: Willdin	  Poor 	  Fair 	  Good 	  Fair 	  Fair 	  Very   poor	Very poor	  Fair 	  Fair 	  Very   poor
16A: Almond	  Fair 	  Fair 	  Good	  Good	  Good	  Fair 	Fair	  Fair	Good	  Fair 
16B: Almond	  Fair   	  Fair   	  Good 	  Good 	  Good 	  Poor 	Very poor	  Fair 	  Good 	  Poor 
16C: Almond	  Fair   	  Fair   	  Good 	  Good 	  Good 	  Very   poor 	Very poor	  Fair 	Good	  Very   poor
17B: Salamanca	  Good 	  Good 	  Good 	  Good 	  Good 	  Poor 	Very poor	  Good 	Good	  Very   poor
17C: Salamanca	  Fair 	  Good 	  Good 	  Good 	  Good 	  Very   poor	Very poor	  Good 	Good	  Very   poor
17D: Salamanca	  Poor	  Fair 	  Good 	  Good 	  Good 	  Very   poor	Very poor	  Fair 	Good	  Very   poor
17E: Salamanca	  Very   poor	    Fair 	  Good 	  Good 	  Good 	  Very   poor	Very poor	    Fair 	Good	  Very   poor
18A: Pope	  Good	    Good 	    Good 	    Good 	    Good 	    Poor 	Very poor	    Good 	Good	  Very   poor
19A: Olean	    Good	    Good 	    Good	    Good	    Good	    Poor 	Poor	    Good	Good	    Poor
19B: Olean	  Good 	  Good 	  Good 	  Good 	  Good 	  Poor 	Very poor	  Good 	  Good 	  Very   poor

Table 13.- Wildlife Habitat-Continued

	1	<del>_</del>	Potentia	l for ha	hitat el	ements		Potenti	al as ha	bitat for-
Map symbol	Grain	<u>.</u>	Wild	1				Open-	Wood-	Wetland
and soil name	and seed crops	Grasses and	herba- ceous	  Hard-   wood   trees	  Conif-  erous  plants	  Wetland  plants 	Shallow  water  areas	! -	land  wild-  life	wild-   life
20A: Unadilla	    Good 	    Good 	    Good 	    Good 	    Good 	    Poor 	    Very   poor	    Good	    Good 	  Very   poor
20B: Unadilla	    Good 	    Good 	    Good	    Good 	    Good	    Poor 	  Very   poor	    Good	    Good	  Very   poor
20C: Unadilla	    Fair 	    Good 	    Good	    Good 	    Good 	    Very   poor	    Very   poor	    Good	    Good	  Very   poor
20D: Unadilla	    Poor 	    Fair 	    Good 	    Good 	    Good 	    Very   poor	    Very   poor	    Fair 	    Good 	  Very   poor
22A: Allard	    Good	    Good	    Good	    Good 	    Good 	    Poor	    Very   poor	    Good	    Good	  Very   poor
22B: Allard	    Good 	    Good 	    Good	    Good 	    Good 	    Poor 	  Very   poor	    Good	    Good	  Very   poor
25A: Chenango	    Fair 	    Fair 	    Fair 	    Fair 	    Fair 	  Very   poor	  Very   poor	    Fair 	    Fair 	  Very   poor
25B: Chenango	    Fair 	    Fair 	    Fair 	    Fair 	    Fair 	  Very   poor	  Very   poor	    Fair 	    Fair 	  Very   poor
25C: Chenango	    Fair 	    Fair 	    Fair 	    Fair 	    Fair 	  Very   poor	  Very   poor	    Fair 	    Fair 	  Very   poor
25D: Chenango	    Fair 	    Fair 	    Fair 	    Fair 	    Fair 	  Very   poor	  Very   poor	    Fair 	    Fair 	  Very   poor
25E: Chenango	  Very   poor	    Fair 	    Fair 	    Fair 	    Fair 	  Very   poor	  Very   poor	    Poor	    Fair 	  Very   poor
25F: Chenango	  Very   poor	  Poor	    Fair 	    Fair 	    Fair 	  Very   poor	  Very   poor	  Poor	    Fair 	  Very   poor
26A: Chenango	    Fair 	    Good 	    Good	    Fair 	    Fair 	    Poor 	  Very   poor	    Good 	    Fair 	  Very   poor
26B: Chenango	    Fair 	    Good 	    Good 	    Fair 	    Fair 	    Poor 	  Very   poor	    Good 	    Fair 	  Very   poor
27A: Castile	    Fair 	    Good 	    Good	    Good 	    Good	    Poor	    Poor	    Good	    Good	    Poor 
27B: Castile	  Fair 	  Good 	  Good 	  Good 	  Good 	  Poor 	  Poor 	Good	  Good 	  Poor 
28A: Scio	  Good 	  Good 	  Good 	  Good 	  Good 	  Poor 	  Poor 	  Good 	  Good 	  Poor 

Table 13.- Wildlife Habitat-Continued

	<u> </u>			ı tor ha	bitat el	ements		!	ial as ha	
Map symbol and soil name	Grain and seed crops	Grasses and legumes	ceous	  Hard-   wood   trees	Conif- erous plants	Wetland plants	Shallow water areas	Open-   land  wild-   life	Wood-   land  wild-   life	Wetland  wild-   life
9A: Chenango	    Fair 	    Fair 	    Fair 	    Fair 	    Fair 	  Very   poor	  Very   poor	    Fair 	    Fair	  Very   poor
29B: Chenango	    Fair 	    Fair 	    Fair 	    Fair 	    Fair 	  Very   poor	  Very   poor	    Fair 	    Fair 	  Very   poor
9C: Chenango	    Fair 	    Fair 	    Fair 	    Fair 	    Fair 	  Very   poor	  Very   poor	    Fair 	  Fair	  Very   poor
9D: Chenango	    Poor 	    Fair 	    Fair 	    Fair 	  Fair 	  Very   poor	  Very   poor	    Fair 	  Fair	  Very   poor
9E: Chenango	  Very   poor	    Fair 	  Fair 	  Fair 	  Fair 	  Very   poor	  Very   poor	    Poor 	  Fair	  Very   poor
1B: Collamer	  Good 	  Good 	  Good 	  Good	  Good	Poor	  Very   poor	  Good	Good	  Very   poor
Collamer	  Fair 	  Good 	  Good 	  Good 	  Good	  Very   poor	  Very   poor	  Good 	Good	  Very   poor
32A: Churchville	  Fair 	  Good	    Good 	  Good	  Good	Fair	    Fair 	    Good 	Good	Fair
32B: Churchville	  Fair 	  Good 	  Good 	  Good 	  Good 	  Poor 	  Very   poor	  Good 	  Good 	  Very   poor
33A: Wallington	  Fair 	Good	  Good	  Good 	Good	Fair	  Fair 	  Good 	Good	  Fair 
4: Getzville	  Very   poor	  Poor 	  Poor 	  Poor 	  Poor 	  Good	  Good 	  Poor 	  Poor	  Good 
35A: Rhinebeck	    Fair 	    Good	    Good	    Good	Good	Fair	    Fair 	    Good 	Good	Fair
5B: Rhinebeck	  Fair 	  Good	  Good	  Good	  Good	Poor	  Very   poor	  Good	Good	  Very   poor
5C: Rhinebeck	    Fair 	    Good	    Good 	    Good	  Good	  Very   poor	    Very   poor	    Good	    Good	  Very   poor
6: Canadice	    Very   poor	    Poor 	    Poor 	    Poor 	    Poor	  Good	    Good 	    Poor 	    Poor	    Good
7A: Tonawanda	    Poor	    Poor	    Fair 	    Fair 	    Fair	Good	    Fair 	    Poor 	    Fair	    Fair
37B: Tonawanda	  Poor	    Poor 	    Fair 	    Fair 	    Fair 	  Poor	    Very   poor	    Poor 	    Fair 	  Very   poor

Table 13.- Wildlife Habitat-Continued

	1		Potentia	l for hal	bitat el	ements		Potenti	al as ha	bitat for-
Map symbol and soil name	Grain and seed crops	Grasses and	Wild  herba-  ceous	  Hard-   wood  _trees	  Conif-  erous  plants	[	  Shallow  water  _areas_	Open-	Wood-   land  wild-   life	Wetland  wild-   life
38A: Niagara	    Fair	    Good	    Good	    Good	    Good	    Fair 	    Fair	    Good	    Good	    Fair
38B: Niagara	  Fair 	  Good 	  Good	  Good	  Good 	  Poor	  Very   poor	  Good	  Good 	  Poor
39A: Halsey	    Very   poor	    Poor 	    Poor	    Poor	    Poor	    Good 	    Good	    Poor	    Poor 	    Good 
40A: Williamson	    Good	    Good	    Good	    Good	    Good	    Poor	    Poor	    Good	    Good	    Poor
40B: Williamson	  Good	  Good	    Good 	    Good	    Good 	    Poor 	  Very   poor	  Good	  Good	  Very   poor
40C: Williamson	    Fair 	    Good	    Good 	    Good 	    Good 	    Very   poor	    Very   poor	    Good 	    Good	    Very   poor
41A: Barcelona	    Fair	    Good	    Good	    Good	    Good	    Fair	    Fair	    Good	    Good	    Fair 
41B: Barcelona	    Fair 	    Good 	    Good	    Good	    Good	    Poor 	  Very   poor	    Good	    Good	    Poor 
42A: Elnora	    Fair 	    Good	    Good	    Fair 	    Fair 	    Poor	    Poor	    Good	    Fair 	    Poor
42B: Elnora	  Fair 	  Good	  Good	  Fair 	  Fair 	  Poor	  Very   poor	  Good	  Fair 	  Very   poor
43: Canandaigua	    Very   poor	    Poor 	    Poor 	    Poor 	    Poor 	    Good 	    Good	  Very   poor	    Poor 	    Good 
44: Canandaigua	  Very   poor	    Poor	    Poor	    Poor	    Poor	    Good 	    Good	  Very   poor	    Poor 	    Good 
45: Canandaigua	    Very   poor	    Poor	    Poor	    Poor	    Poor 	    Good 	    Good	  Very   poor	    Poor 	    Good 
46: Swormville	    Fair	    Good	    Good	    Good	    Good	    Fair	    Fair	    Good	    Good	    Fair
47A: Minoa	    Fair	    Good	    Good	    Good	    Good	    Fair 	    Fair 	    Good	    Good	    Fair 
48A: Colonie	    Poor	    Poor	    Fair 	    Poor	    Poor	    Very   poor	  Very   poor	    Poor	    Poor 	  Very   poor
48B: Colonie	    Poor 	    Poor 	    Fair 	    Poor 	    Poor 	    Very   poor	  Very   poor	    Poor 	    Poor 	    Very   poor 

Table 13.- Wildlife Habitat-Continued

	1		Potentia	l for hal	oitat ele	ements		Potentia	al as hal	bitat for-
Map symbol	Grain		Wild					Open-	Wood-	Wetland
and soil name	and	Grasses	herba-	Hard-	Conif-	Wetland	Shallow	-	land	wild-
	seed	and	ceous	wood	erous	plants	water	wild-	wild-	life
	crops	legumes	plants	trees	plants	i	areas	life	life	İ
	<del>-</del>	i				i				İ
48C:		İ		İ		j			İ	j
Colonie	Poor	Poor	Fair	Poor	Poor	Very	Very	Poor	Poor	Very
						poor	poor			poor
49A:	_	_								
Red Hook	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair
F03 -										
50A:	  Poin	  Good	  Good	  Good	  Good	Poor	Poor	  Good	  Good	  Poor
Canaseraga	<b>га</b> тт 	Good	GOOG	Good	Good 	FOOT	FOOI	GOOG	Good	FOOT
50B:	 	 		 		i			 	 
Canaseraga	Fair	Good	Good	Good	Good	Poor	Very	Good	Good	Very
3						İ	poor			poor
		İ		İ					İ	j -
50C:										
Canaseraga	Fair	Good	Good	Good	Good	Very	Very	Good	Good	Very
						poor	poor			poor
51B:										
Chadakoin	Fair	Good	Good	Good	Good	Poor	Very	Good	Good	Very
	 	 		 			poor		 	poor
51C:	 	 		 					 	l I
Chadakoin	  Fair	Good	Good	Good	Good	Very	Very	Good	Good	  Very
0						poor	poor			poor
		İ		İ		-			İ	
51D:		İ		İ		j			İ	j
Chadakoin	Poor	Fair	Good	Good	Good	Very	Very	Fair	Good	Very
						poor	poor			poor
51E:										
Chadakoin	Poor	Fair	Good	Good	Good	Very		Fair	Good	Very
						poor	poor			poor
51F:	 	 		 					 	l I
Chadakoin	  Verv	Poor	Good	Good	Good	Very	Very	Poor	Good	  Very
	poor					poor	poor			poor
		İ		İ		-			İ	
52B:		İ		İ		j			İ	j
Valois	Fair	Good	Good	Good	Good	Poor	Very	Good	Good	Very
							poor			poor
										ļ
52C:										
Valois	Fair	Good	Good	Good	Good	Very	Very	Good	Good	Very
	 	 	] 	 		poor	poor	] 	 	poor
52D:	 	 		 		] 			 	! 
Valois	Poor	Fair	Good	Good	Good	Very	Very	Fair	Good	Very
						poor	poor			poor
		İ		İ		i -	_		İ	į
52E:		j		j		j			j	j
Valois	Very	Fair	Good	Good	Good	Very	Very	Fair	Good	Very
	poor	ļ		ļ		poor	poor		ļ	poor
										ļ
52F:	   •••							   <b> </b>		
Valois	-	Poor	Good	Good	Good	Very	Very	Poor	Good	Very
	poor	 	 	 	 	poor	poor	 	 	poor
53C:	 	 	 	 	 	 		 	 	 
Valois	  Fair	  Good	  Good	  Good	  Good	Very	Very	  Good	  Good	  Very
	- <b></b>					poor	poor			poor
		İ		İ					İ	
Volusia	Fair	Fair	Fair	Poor	Poor	Very	Very	Fair	Poor	Very
		İ		İ		poor	poor		İ	poor

Table 13.- Wildlife Habitat-Continued

	<u> </u>			l for ha	bitat el	ements		!		bitat for
Map symbol and soil name	Grain and seed crops	Grasses and legumes	ceous	  Hard-   wood   trees	Conif-  erous  plants	  Wetland  plants	!	Open- land wild- life	Wood-   land  wild-   life	Wetland  wild-   life
53C: Mardin	    Fair 	  Good	    Good	    Fair   	    Fair 	  Very   poor	    Very   poor	    Good 	  Fair	  Very   poor
55A: Darien	    Fair 	Good	    Good	  Good	Good	  Fair	    Fair 	    Good	Good	Fair
55B: Darien	  Fair 	Good	  Good	  Good 	  Good 	  Fair 	  Very   poor	  Good	Good	  Very   poor
55C: Darien	    Fair 	Good	    Good	    Good	    Good	  Very   poor	  Very   poor	    Good	Good	  Very   poor
56B: Chautauqua	    Good	Good	    Good	    Good	    Good	    Poor 	    Very   poor	    Good	  Good	  Very   poor
56C: Chautauqua	    Fair 	Good	    Good	    Good	    Good	  Very   poor	  Very   poor	    Good	Good	  Very   poor
56D: Chautauqua	    Poor	    Fair	    Good	    Good	    Good	  Very   poor	  Very   poor	    Fair	Good	  Very   poor
57A: Busti	    Fair 	    Fair	    Good	    Good	    Good	    Fair 	    Fair 	    Fair 	    Fair	    Fair
57B: Busti	  Fair 	  Fair	Good	  Good 	  Good	  Poor	  Very   poor	  Fair 	  Fair	  Very   poor
57C: Busti	    Fair 	  Fair	    Good	    Good	    Good	  Very   poor	  Very   poor	    Fair 	  Fair	  Very   poor
58B: Rushford	    Good 	Good	    Good	    Good	    Good	    Poor 	  Very   poor	    Good	Good	  Very   poor
58C: Rushford	    Good	Good	    Good	    Good	    Good	  Very   poor	    Very   poor	    Good	  Good	  Very   poor
59B: Yorkshire	    Fair 	Good	    Good	    Good 	    Good	    Poor 	  Very   poor	    Good	Good	  Very   poor
59C: Yorkshire	    Fair 	Good	  Good	    Good	    Good	  Very   poor	  Very   poor	    Good	Good	  Very   poor
59D: Yorkshire	    Fair 	Good	    Good	    Good	    Good 	  Very   poor	  Very   poor	    Good	Good	  Very   poor
60A: Napoli	    Fair 	    Fair	    Good	    Good	    Good	    Fair	    Fair 	    Fair 	    Good	  Fair
60B: Napoli	  Fair	Fair	    Good	  Good	  Good	Poor	  Very   poor	    Fair	Good	  Very   poor

Table 13.- Wildlife Habitat-Continued

	ı		Potentia	l for ha	bitat el	ements		Potenti	al as ha	bitat for-
Map symbol and soil name	Grain and seed crops	Grasses and	Wild  herba-  ceous	  Hard-   wood   trees	  Conif-  erous  plants		  Shallow  water   areas	Open- land wild- life	Wood-  land  wild-  life	Wetland  wild-   life
60C: Napoli	    Fair 	    Fair   	    Good 	    Good 	    Good 	  Very   poor	  Very   poor	     <b>Fair</b> 	Good	    Very   poor
60D: Napoli	  Fair 	  Fair 	  Good 	  Good 	  Good 	  Very   poor	  Very   poor	  Fair 	Good	  Very   poor
61B: Schuyler	  Good 	  Good 	  Good 	  Good 	  Good 	  Poor 	  Very   poor	  Good 	Good	  Very   poor
61C: Schuyler	  Good 	  Good 	  Good 	  Good 	  Good 	  Very   poor	  Very   poor	  Good 	Good	  Very   poor
61D: Schuyler	  Good 	  Good 	  Good 	  Good 	  Good 	  Very   poor	  Very   poor	  Good 	Good	  Very   poor
61E: Schuyler	  Good	  Good 	  Good 	  Good 	  Good 	  Very   poor	  Very   poor	  Good 	Good	  Very   poor
61F: Schuyler	  Good	  Good 	  Good 	  Good	  Good	  Very   poor	  Very   poor	  Good	Good	  Very   poor
62B: Mardin	    Fair 	  Good 	  Good	    Fair 	    Fair 	  Poor	  Very   poor	  Good	Fair	  Very   poor
62C: Mardin	    Fair 	    Good 	    Good 	    Fair 	    Fair 	  Very   poor	  Very   poor	    Good 	Fair	  Very   poor
62D: Mardin	    Fair 	    Good 	    Good 	    Fair 	    Fair 	  Very   poor	  Very   poor	    Good 	Fair	  Very   poor
63B: Langford	    Fair 	    Good 	    Good 	    Fair 	    Fair 	    Poor 	  Very   poor	    Good 	Fair	  Very   poor
63C: Langford	    Fair 	    Good 	    Good	    Fair 	    Fair 	  Very   poor	  Very   poor	    Good	  Fair	  Very   poor
63D: Langford	    Fair 	    Good 	    Good	    Fair 	    Fair 	  Very   poor	  Very   poor	    Good	  Fair	  Very   poor
64C: Mardin	    Very   poor	    Poor 	    Good 	    Fair 	    Fair 	  Very   poor	    Very   poor	    Poor 	    Fair 	  Very   poor
66B: Volusia	    Very   poor	    Poor 	    Fair 	    Poor 	    Poor 	    Poor 	    Very   poor	    Poor 	Poor	  Very   poor
67A: Dalton	    Fair 	    Fair 	    Fair 	    Good 	    Good 	    Fair 	    Fair 	    Fair 	Good	    Fair 

Table 13.- Wildlife Habitat-Continued

	l		Potentia	l for hal	oitat ele	ements		Potenti	al as ha	bitat for-
Map symbol	Grain		Wild					Open-	Wood-	Wetland
and soil name	and	Grasses	herba-	Hard-	Conif-	Wetland	Shallow	land	land	wild-
	seed	and	ceous	wood	erous	plants	water	wild-	wild-	life
	crops	legumes	plants	trees	plants	<b></b>	areas	life_	life_	
67B: Dalton	    Fair 	    Fair 	    Fair 	    Good 	    Good 	    Poor	  Very   poor	Fair	    Good 	  Very   poor
68A: Volusia	    Fair 	    Fair 	    Fair 	    Poor 	    Poor 	    Fair 	    Fair 	Fair	    Poor 	    Fair 
68B: Volusia	  Fair 	  Fair 	  Fair 	  Poor 	  Poor 	  Poor 	  Very   poor	Fair	  Poor 	  Very   poor
68C: Volusia	  Fair 	  Fair 	  Fair 	  Poor	  Poor	  Very   poor	  Very   poor	Fair	  Poor	  Very   poor
69A: Erie	  Fair 	  Fair 	  Fair 	  Poor 	  Poor 	  Fair 	  Fair 	Fair	  Poor 	  Fair 
69B: Erie	  Fair   	  Fair 	  Fair 	  Poor 	  Poor 	  Poor 	  Very   poor	Fair	  Poor 	  Very   poor
69C: Erie	  Fair 	  Fair 	  Fair 	  Poor 	  Poor 	  Very   poor	  Very   poor	Fair	  Poor 	  Very   poor
71E: Mongaup	  Very   poor	  Very   poor	  Good 	  Good 	  Good 	  Very   poor	  Very   poor	Poor	  Good 	  Very   poor
71F:	 		 	l I	 	 	 			
Mongaup	  Very   poor	  Very   poor	  Good 	  Good 	Good	  Very   poor	  Very   poor	Poor	  Good 	  Very   poor
72B: Towerville	  Good 	  Good 	  Good 	  Good 	  Good 	  Poor 	  Very   poor	Good	  Good 	  Very   poor
72C: Towerville	  Good 	  Good 	  Good 	  Good 	  Good 	  Very   poor	  Very   poor	Good	  Good 	  Very   poor
72D: Towerville	  Good 	  Good 	  Good 	  Good 	  Good 	  Very   poor	  Very   poor	Good	  Good 	  Very   poor
72E: Towerville	  Good 	  Good 	  Good 	  Good 	  Good 	  Very   poor	  Very   poor	Good	  Good 	  Very   poor
72F: Towerville	  Good 	  Good 	  Good 	  Good 	  Good 	  Very   poor	  Very   poor	Good	  Good 	  Very   poor
73B: Gretor	    Fair 	    Fair 	    Poor 	    Fair 	    Fair 	    Poor 	  Very   poor	Fair	    Fair 	  Very   poor
73C: Gretor	    Fair 	    Fair 	    Poor 	    Fair 	    Fair 	  Very   poor	  Very   poor	Fair	    Fair 	  Very   poor
74: Ashville	    Poor	    Fair 	    Fair 	    Fair 	    Fair 	    Good 	    Good	Fair	    Fair 	  Good

Table 13.- Wildlife Habitat-Continued

	i	]	Potentia	l for hal	bitat el	ements		Potenti	al as ha	bitat for-
Map symbol and soil name	Grain and seed crops	Grasses and	Wild  herba-  ceous	  Hard-   wood   trees	  Conif-  erous  plants		  Shallow  water   areas	Open- land wild- life	Wood-   land  wild-   life	Wetland  wild-   life 
75: Alden	    Very   poor	    Poor 	    Poor 	    Poor 	    Poor 	    Good 	    Good 	Poor	    Poor 	    Good 
76A: Orpark	    Fair 	    Good	    Good	    Good	    Good	    Fair 	    Fair 	Good	    Good	    Fair 
76B: Orpark	  Fair 	  Good 	  Good	  Good 	  Good	  Poor 	  Very   poor	Good	  Good	  Very   poor
76C: Orpark	    Fair 	    Good 	    Good 	    Good 	    Good 	    Very   poor	    Very   poor	Good	    Good	  Very   poor
77A: Chippewa	    Poor 	    Fair 	    Fair 	    Fair 	    Fair 	    Good 	    Good 	Fair	    Fair 	    Good 
78A: Hornell	  Fair 	  Good	  Good	  Good	  Good 	  Fair 	  Fair 	Good	  Good	  Fair 
78B: Hornell	  Fair 	  Good 	  Good	  Good 	  Good	  Poor 	  Very   poor	Good	  Good 	  Very   poor
78C: Hornell	    Fair 	    Good 	    Good 	    Good 	    Good 	    Very   poor	  Very   poor	Good	    Good 	    Very   poor
78D: Hornell	    Fair 	    Good 	    Good	    Good 	    Good 	    Very   poor	    Very   poor	Good	    Good	  Very   poor
78F: Hornell	    Very   poor	    Fair 	    Good 	    Good 	    Good	    Very   poor	    Very   poor	Fair	    Good	  Very   poor
Hudson	  Very   poor	  Poor 	  Good 	  Good 	  Good 	  Very   poor	  Very   poor	Poor	  Good 	  Very   poor
79B: Mongaup	  Fair 	  Good	  Good	  Good	  Good	  Very   poor	  Very   poor	Fair	  Good	  Very   poor
79C: Mongaup	    Fair 	    Good 	    Good	    Good 	    Good	    Very   poor	  Very   poor	Fair	    Good	  Very   poor
79D: Mongaup	    Fair 	    Good 	    Good	    Good 	    Good	    Very   poor	  Very   poor	Fair	    Good	    Very   poor
79E: Mongaup	    Fair 	    Good 	    Good	    Good 	    Good	    Very   poor	  Very   poor	Fair	    Good	    Very   poor
79F: Mongaup	    Fair 	    Good 	    Good 	    Good 	    Good	    Very   poor	    Very   poor	Fair	    Good 	    Very   poor
80A: Fremont	    Fair 	    Fair 	    Good 	    Good 	    Good	    Fair 	    Fair 	    Fair	    Good	    Fair 

Table 13.- Wildlife Habitat-Continued

				l for ha	bitat el	ements		!		bitat for-
Map symbol and soil name	Grain and seed crops	Grasses and	ceous	  Hard-   wood   trees	  Conif-  erous  plants	!	Shallow water areas	Open- land wild- life	Wood-   land  wild-   life	Wetland  wild-   life
80B: Fremont	    Fair 	    Fair 	    Good 	    Good 	    Good 	    Poor 	  Very   poor	    Fair 	Good	  Very   poor
80C: Fremont	    Fair 	    Fair 	    Good 	    Good 	    Good 	  Very   poor	  Very   poor	    Fair 	Good	  Very   poor
81B: Varysburg	  Good 	  Good 	  Good 	  Good 	  Good 	  Poor	  Very   poor	  Good	Good	  Very   poor
81C: Varysburg	  Good 	  Good 	  Good 	  Good 	  Good 	  Very   poor	  Very   poor	  Good	Good	  Very   poor
81D: Varysburg	  Good 	  Good	  Good 	  Good 	  Good 	  Very   poor	  Very   poor	  Good	Good	  Very   poor
81E: Varysburg	    Good	  Good	    Good 	    Good 	    Good 	  Very   poor	  Very   poor	    Good	Good	  Very   poor
82F: Rock outcrop	    Very   poor	  Very   poor	  Very   poor	  Very   poor	  Very   poor	  Very   poor	  Very   poor	  Very   poor	  Very   poor	  Very   poor
Manlius	  Very   poor	  Poor 	  Good 	  Fair 	  Fair   	  Very   poor	  Very   poor	  Poor 	  Fair	  Very   poor
84B: Elko	  Fair 	  Good 	  Good 	  Good	  Good	  Poor	  Very   poor	  Good	Good	  Very   poor
84C: Elko	    Fair 	    Good 	    Good	    Good 	    Good	  Very   poor	  Very   poor	    Good	  Good	  Very   poor
85B: Onoville	    Fair 	    Good	    Good	    Good	    Good	    Poor	  Very   poor	    Good	  Good	  Very   poor
85C: Onoville	    Fair 	    Good	    Good	    Good	    Good	  Very   poor	  Very   poor	    Good	Good	  Very   poor
85D: Onoville	    Fair 	    Good	    Good	    Good	    Good	  Very   poor	  Very   poor	    Good	Good	  Very   poor
86B: Eldred	    Fair 	    Good	    Good	    Good	    Good	    Poor	  Very   poor	    Good	Good	  Very   poor
86C: Eldred	    Fair 	    Good	    Good	    Good 	    Good	  Very   poor	  Very   poor	    Good	Good	  Very   poor
86D: Eldred	    Fair 	    Good 	    Good	    Good 	    Good 	  Very   poor	  Very   poor	    Good	  Good	    Very   poor

Table 13.- Wildlife Habitat-Continued

	i .		Potentia	l for ha	bitat el	ements		Potenti	al as ha	bitat for-
Map symbol and soil name	Grain and seed crops	Grasses and	Wild  herba-  ceous	Hard-   wood	  Conif-  erous  plants		  Shallow  water  _areas	Open-	Wood-   land  wild-  _life	Wetland  wild-   life
87B: Shongo	    Fair 	    Fair   	    Good 	    Good 	    Good 	    Poor 	  Very   poor	    Fair   	    Fair   	    Very   poor
87C: Shongo	  Fair 	  Fair 	  Good 	  Good 	  Good 	  Very   poor	  Very   poor	  Fair 	  Fair 	  Very   poor
88A: Ivory	    Fair	  Good	  Good	  Good	  Good	  Fair	    Fair	  Good	Good	  Fair
88B: Ivory	    Fair 	  Good	    Good 	  Good	  Good	  Poor	  Very   poor	  Good	  Good	  Very   poor
88C: Ivory	  Fair 	  Good 	  Good 	  Good 	  Good 	  Very   poor	  Very   poor	  Good	  Good 	  Very   poor
88D: Ivory	    Fair 	    Good	    Good 	    Good 	    Good 	    Very   poor	    Very   poor	    Good 	    Good 	    Very   poor
89B: Portville	    Fair 	    Fair 	    Good 	    Good	    Good	    Poor 	    Very   poor	    Fair 	    Fair 	  Very   poor
89C: Portville	    Fair 	    Fair 	    Good	    Good	    Good	  Very   poor	    Very   poor	    Fair 	    Fair 	  Very   poor
90A: Brinkerton	    Poor	    Fair 	    Good	    Fair 	    Fair 	    Good	    Good	    Fair 	    Fair 	    Good
90B: Brinkerton	  Poor	  Fair 	  Good	  Fair	  Fair 	  Fair 	Fair	  Fair	Fair	  Fair 
91A: Palms	  Poor	  Poor	  Poor	  Poor	  Poor	  Good	  Good	  Poor	Poor	  Good
92: Carlisle	  Poor	  Poor	  Poor 	  Poor	  Poor	  Good	  Good	  Poor 	Poor	  Good 
93: Saprists, inundated	  Very   poor	  Very   poor	  Poor 	  Very   poor	  Very   poor	  Good 	  Good 	  Very   poor	  Very   poor	  Good 
94B: Frewsburg	    Fair 	    Fair 	    Good	    Good 	    Good	    Poor 	  Very   poor	    Fair 	    Good	  Very   poor
94C: Frewsburg	    Fair 	    Fair 	    Good 	    Good 	    Good 	    Very   poor	  Very   poor	    Fair 	    Good 	    Very   poor
95B: Mandy	    Poor	    Fair 	    Fair 	    Poor 	    Poor 	  Very   poor	    Very   poor	    Fair 	    Poor 	  Very   poor
95C: Mandy	    Poor 	    Fair   	     <b>Fair</b> 	    Poor 	    Poor 	    Very   poor	  Very   poor	    Fair   	    Poor 	    Very   poor 

Table 13.- Wildlife Habitat-Continued

	İ	]	Potentia	l for hal	bitat el	ements		Potenti	al as ha	bitat for-
Map symbol and soil name	Grain and seed	Grasses and	Wild  herba-  ceous	  Hard-   wood	  Conif-  erous	  Wetland  plants	  Shallow  water	Open- land wild-	Wood-   land  wild-	Wetland  wild-   life
	crops	legumes	plants	trees	plants		areas	_life_	life_	
95D: Mandy	    Poor 	    Fair 	    Fair   	    Poor 	    Poor 	  Very   poor	Very poor	    Fair 	    Poor 	  Very   poor
95E: Mandy	  Poor 	  Fair 	  Fair 	  Poor 	  Poor 	  Very   poor	Very poor	  Fair 	  Poor 	  Very   poor
95F: Mandy	  Poor	  Fair 	  Fair 	  Poor	  Poor	  Very   poor	Very poor	  Fair 	  Poor	  Very   poor
96B: Carrollton	  Good 	  Good 	  Good 	  Good 	  Good 	  Very   poor	Very poor	  Good 	  Good 	  Very   poor
96C: Carrollton	    Good 	    Good 	    Good 	    Good 	    Good 	  Very   poor	Very poor	    Good 	    Good 	  Very   poor
96D: Carrollton	  Good 	  Good 	  Good 	  Good 	  Good 	  Very   poor	Very poor	  Good 	  Good 	  Very   poor
96E: Carrollton	  Good	  Good	  Good	  Good	  Good	  Very   poor	Very poor	  Good	  Good	  Very   poor
96F: Carrollton	    Good 	    Good 	    Good 	    Good 	    Good 	  Very   poor	Very poor	    Good 	    Good 	  Very   poor
97B: Kinzua	    Fair 	    Good 	  Good 	    Good 	  Good 	  Very   poor	Very poor	  Good 	  Good 	  Very   poor
97C: Kinzua	  Fair 	  Good 	  Good	  Good	  Good	  Very   poor	Very poor	  Good	  Good	  Very   poor
97D: Kinzua	    Fair 	  Good 	  Good	    Good 	  Good	  Very   poor	Very poor	  Good	  Good	  Very   poor
97E: Kinzua	    Fair 	  Good	  Good	    Good 	  Good	  Very   poor	Very poor	  Good	  Good	  Very   poor
97F: Kinzua	    Fair 	    Good 	    Good	    Good 	    Good	  Very   poor	Very poor	    Good	    Good 	  Very   poor
98D: Kinzua	    Poor	    Fair 	    Good 	    Good 	    Good 	    Very   poor	  Very   poor	    Fair 	    Good	  Very   poor
98E: Kinzua	    Poor	    Fair 	    Good 	    Good 	    Good 	    Very   poor	  Very   poor	    Fair 	    Good	    Very   poor
99B: Buchanan	    Fair 	    Good 	    Good 	    Good 	    Good 	    Poor 	Very poor	    Good 	    Good 	  Very   poor

Table 13.- Wildlife Habitat-Continued

	1		Potentia	l for ha	bitat el	ements		Potenti	al as ha	bitat for-
Map symbol	Grain	<u> </u>	Wild					Open-	Wood-	Wetland
and soil name	and	Grasses	herba-	Hard-	Conif-	Wetland	Shallow		land	wild-
	seed	and	ceous	wood	erous	plants	water	wild-	wild-	life
	crops	legumes	plants	trees	plants	İ	areas	life	life	İ
			Ì				i			
99C:			[							
Buchanan	Fair	Good	Good	Good	Good	Very	Very	Good	Good	Very
		!				poor	poor			poor
								ļ		
99D:	   To 4	03		   <b>a a</b>			   <b></b>		   <b>a a</b>	
Buchanan	Fair	Good	Good	Good	Good	Very	Very	Good	Good	Very
		-				poor	poor	l I		poor
100:	 	-		 		1	 			
Udorthents	Verv	Very	Poor	Very	Very	Very	Very	Poor	Very	Very
040101101	poor	poor		poor	poor	poor	poor		poor	poor
		-	İ		•			i		
101:	İ	i	İ	İ	İ	i	İ	İ	İ	
Udorthents,	Very	Very	Poor	Very	Very	Very	Very	Very	Poor	Very
refuse	poor	poor		poor	poor	poor	poor	poor		poor
substratum										
		ļ	ļ		ļ			ļ		
102C:			ļ					ļ		
Mandy	Poor	Fair	Fair	Poor	Poor	Very	Very	Fair	Poor	Very
		-				poor	poor			poor
Poak outaron	Voru	770277	170277	Voru	Voru	Voru	17027	   170 mm	Voru	Voru
Rock outcrop	poor	Very   poor	Very   poor	Very   poor	Very   poor	Very   poor	Very   poor	Very   poor	Very   poor	Very   poor
	POOL	POOL	POOL	POOL	POOL	POOL	poor	POOL	POOL	POOL
103C:							! 	i		
Knapp Creek	Fair	Good	Good	Good	Good	Very	Very	Good	Good	Very
••	İ	i	İ	İ	İ	poor	poor	İ	İ	poor
	İ	İ	İ	İ	İ	į -	į -	j	j	į -
Rock outcrop	Very	Very	Very	Very	Very	Very	Very	Very	Very	Very
	poor	poor	poor	poor	poor	poor	poor	poor	poor	poor
104B:	ļ					ļ_		_		
Flatiron	Fair	Good	Good	Good	Good	Poor	Very	Good	Good	Very
		-				-	poor			poor
104C:							 			
Flatiron	  Fair	Good	  Good	Good	Good	Very	  Very	  Good	Good	Very
riaciion	Fair	J	GOOG	J	J	poor	poor	GOOG	GOOG	poor
		i				POOL		ŀ		
104D:		i	İ		İ	i	İ	i		
Flatiron	Fair	Good	Good	Good	Good	Very	Very	Good	Good	Very
	İ	İ	İ	İ	İ	poor	poor	j	İ	poor
104E:										
Flatiron	Fair	Good	Good	Good	Good	Very	Very	Good	Good	Very
						poor	poor			poor
100D.		-				-				
108D: Hartleton	Doom	  Fair	  Good	Good	  Good	170	170	  Fair	Good	Very
Har Clecon	FOOT	Fair	GOOG	GOOG	GOOG	Very   poor	Very   poor	raii	GOOG	poor
							1001	İ		
108E:		i	i		i	İ	İ	İ		i
Hartleton	Poor	Fair	Good	Good	Good	Very	Very	Fair	Good	Very
	İ	İ	İ	İ	İ	poor	poor	j	İ	poor
		İ	İ		İ	İ	İ	İ		İ
108F:										
Hartleton	Poor	Fair	Good	Good	Good	Very	Very	Fair	Good	Very
						poor	poor			poor
								ļ		
131:										
Lamson	: -	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good
	poor						 			
	I	I	I	I	I	I	I	I	I	1

Table 13.- Wildlife Habitat-Continued

				l for ha	bitat el	ements				bitat fo
Map symbol and soil name	Grain   and   seed   crops	Grasses and	ceous	Hard-   wood   trees	Conif-  erous  plants	!	Shallow water areas	Open- land wild- life	Wood-   land  wild-   life	Wetland  wild-   life
132B: Wiscoy	    Fair   	    Fair   	    Fair 	    Poor 	    Poor 	    Poor 	Very poor	  Fair	Poor	  Very   poor
132C: Wiscoy	  Fair 	  Fair 	  Fair 	  Poor	  Poor	  Very   poor	Very poor	Fair	  Poor	  Very   poor
.35C: Hudson	    Fair 	  Good	    Good	  Good	  Good	  Very   poor	Very poor	Good	  Good	  Very   poor
.35D: Hudson	    Fair 	    Good	    Good 	  Good	  Good	  Very   poor	  Very   poor	Good	  Good	  Very   poor
.35E: Hudson	    Fair 	    Good	    Good 	  Good	  Good	  Very   poor	Very poor	Good	  Good	  Very   poor
140D: Dunkirk	    Poor	    Fair 	    Good 	  Good	  Good	  Very   poor	Very poor	  Fair	  Good	  Very   poor
40E: Dunkirk	    Poor 	    Fair 	    Good	Good	Good	  Very   poor	Very poor	Fair	  Good	  Very   poor
185C: Onoville	    Fair 	    Good	    Good	    Good	  Good	  Very   poor	Very poor	Good	  Good	  Very   poor
85D: Onoville	    Fair 	    Good	    Good	  Good	  Good	  Very   poor	Very poor	Good	  Good	  Very   poor
87B: Shongo	    Fair 	    Fair 	    Good	  Good	  Good	    Poor	Very poor	  Fair	    Fair 	  Very   poor
87C: Shongo	    Fair 	    Fair 	    Good	  Good	Good	  Very   poor	Very poor	  Fair	    Fair 	  Very   poor
.88B: Cavode	    Fair 	    Good	    Good	    Good	  Good	    Poor 	Very poor	  Good	  Good	  Very   poor
.88C: Cavode	    Fair 	    Good	    Good	    Good	    Good	    Very   poor	     Poor	Good	    Good	  Very   poor
88D: Cavode	    Fair 	    Good	    Good	    Good	    Good	  Very   poor	  Very   poor	Good	    Good	  Very   poor
89B: Portville	    Fair 	    Fair 	    Good	    Good	    Good	    Poor 	     Poor	Fair	    Fair 	  Very   poor
l89C: Portville	    Fair 	    Fair 	    Good	    Good	    Good	    Very   poor	  Very   poor	    Fair	    Fair	  Very   poor

Table 13.- Wildlife Habitat-Continued

	<u> </u>	]	Potentia	l for ha	bitat el	ements		Potenti	al as ha	bitat for-
Map symbol and soil name	Grain and seed crops	Grasses and	ceous	  Hard-   wood   trees	  Conif-  erous  plants	  Wetland  plants 	Shallow water areas	Open- land wild- life	Wood-   land  wild-   life	Wetland  wild-   life 
195C: Mandy	    Poor	    Fair	    Fair	    Poor	    Poor	  Very   poor	Very poor	Fair	    Poor	  Very   poor
195D: Mandy	    Poor 	    Fair 	    Fair 	    Poor 	    Poor	  Very   poor	  Very   poor	    Fair 	    Poor 	  Very   poor
195E: Mandy	    Poor	    Fair 	    Fair 	    Poor 	    Poor	    Very   poor	Very poor	    Fair	    Poor 	  Very   poor
199C: Buchanan	    Fair 	    Good 	    Good	    Good 	    Good	    Very   poor	Very poor	Good	    Good	    Very   poor
199D: Buchanan	    Fair 	    Good	    Good 	    Good 	    Good 	    Very   poor	  Very   poor	  Good	    Good	  Very   poor
289B: Ceres	    Fair 	    Good 	    Good	    Good 	    Good	    Poor 	Very poor	Good	    Good	  Very   poor
289C: Ceres	    Fair 	    Good	    Good	    Good 	    Good	    Very   poor	Very poor	Good	    Good	    Very   poor
289D: Ceres	    Fair 	    Good 	    Good	    Good 	    Good 	    Very   poor	Very poor	    Good	    Good	  Very   poor
289E: Ceres	    Fair 	    Good	    Good	    Good 	    Good 	  Very   poor	  Very   poor	  Good	  Good	  Very   poor
289F: Ceres	    Fair 	    Good	    Good	    Good 	    Good 	  Very   poor	  Very   poor	  Good	  Good	  Very   poor
400: Wakeville	    Fair 	    Good 	    Good	    Good 	    Good 	    Fair 	Fair	    Good	    Good	    Fair 
496B: Gilpin	  Fair   	  Good 	  Good 	  Fair   	  Fair   	  Poor 	  Very   poor	  Good 	  Fair   	  Very   poor
496C: Gilpin	  Fair 	  Good 	  Good 	  Fair 	  Fair 	  Very   poor	Very poor	Good	  Fair 	  Very   poor
496D: Gilpin	    Fair 	  Good 	  Good	    Fair 	    Fair 	  Very   poor	Very poor	Good	  Fair 	  Very   poor
496E: Gilpin	    Fair 	    Good 	    Good 	    Fair 	    Fair 	  Very   poor	Very poor	Good	    Fair 	  Very   poor
496F: Gilpin	    Fair 	    Good 	    Good 	    Fair 	     <b>Fair</b> 	  Very   poor	Very poor	    Good	    Fair 	  Very   poor

Table 13.- Wildlife Habitat-Continued

			Potentia	l for ha	bitat el	ements		Potent:	ial as ha	abitat for
Map symbol	Grain		Wild					Open-	Wood-	Wetland
and soil name	and	Grasses	herba-	Hard-	Conif-	Wetland	Shallow		land	wild-
	seed	and	ceous	wood	erous	plants	water	wild-	wild-	life
	crops	legumes	plants	trees	plants		areas	life	life	<u> </u>
97D:	 		 				 			
Rayne	Poor	Fair	Good	Good	Good	Very	   Very   poor	Fair	Good	Very
	 		 			poor	10001			poor
97E:										
Rayne	Poor	Fair	Good 	Good	Good	Very   poor	Very   poor	Fair	Good	Very   poor
	İ			İ					İ	
97 <b>F:</b>	_			.						
Rayne	Poor	Fair	Good	Good	Good	Very	Very   poor	Fair	Good	Very
	İ			İ					İ	
98E:						 	 			
Rayne	Poor	Fair	Good 	Good	Good	Very	Very   poor	Fair	Good	Very   poor
	İ		İ	İ					İ	
00: Holderton		Good	Good	Good	Good	Fair	  Fair	Good	Good	  Fair
HOIGERTON	Fair 	Good	G00a 	Good	Good	Fair	Fair 	G00a 	Good	Fair
G:	İ		İ	İ		İ	İ		İ	İ
Pits, gravel										
r:	! 		 				 			
Urban land	ļ		ļ				ļ			
:	 		 				 			
Water	i									

## Table 14.-Construction Materials

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The ratings given for the thickest layer are for the thickest layer above and excluding the bottom layer. The numbers in the value columns range from 0.00 to 0.99. The greater the value, the greater the likelihood that the bottom layer or thickest layer of the soil is a source of sand or gravel. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	gravel	of	Potential source sand	of
		Rating class	Value	Rating class	Value
1: Udifluvents	     40 	  Improbable   Bottom layer   Thickest layer	    0.00  0.00	Probable Thickest layer Bottom layer	      0.08  0.77
Fluvaquents	   35   	  Improbable   Bottom layer   Thickest layer	  0.00  0.00	  Probable   Thickest layer   Bottom layer	    0.05  0.77
2: Hamlin	   85   	  Improbable   Bottom layer   Thickest layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	0.00
3: Tioga	   85   	Improbable Bottom layer Thickest layer	    0.00  0.00	Improbable Thickest layer Bottom layer	    0.00  0.00
4: Teel	   85   	  Improbable   Bottom layer   Thickest layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	    0.00  0.00
5: Wayland	   85 	Improbable   Bottom layer   Thickest layer	0.00	Improbable   Bottom layer   Thickest layer	0.00
6A: Wyalusing	     85   	  Improbable   Thickest layer   Bottom layer	    0.00  0.00	Probable Thickest layer Bottom layer	    0.00  0.07
7A: Philo	   85   	Improbable Bottom layer Thickest layer	    0.00  0.00	Probable Thickest layer Bottom layer	    0.00  0.03
8: Middlebury	   85   	  Improbable   Bottom layer   Thickest layer	    0.00  0.00	  Improbable   Thickest layer   Bottom layer	    0.00  0.00
9: Pawling	   85   	  Improbable   Thickest layer   Bottom layer	    0.00  0.00	Probable Thickest layer Bottom layer	    0.00  0.86

Table 14.—Construction Materials—Continued

Map symbol and soil name	Pct. of map	gravel	of	Potential source sand	of
	unit 	   Rating class	  Value	   Rating class	Value
10: Atkins	     85 	Improbable Thickest layer Bottom layer	0.00	Probable Thickest layer Bottom layer	0.00
11B: Ischua	     85 	  Improbable   Thickest layer   Bottom layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00
11C: Ischua	     85   	  Improbable   Thickest layer   Bottom layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	    0.00  0.00
11D: Ischua	   85   	  Improbable   Thickest layer   Bottom layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00
11E: Ischua	   85   	  Improbable   Thickest layer   Bottom layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	  0.00  0.00
11F: Ischua	   85   	  Improbable   Thickest layer   Bottom layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	  0.00  0.00
12B: Franklinville	   85   	  Improbable   Thickest layer   Bottom layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	    0.00  0.00
12C: Franklinville	   85   	  Improbable   Thickest layer   Bottom layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	    0.00  0.00
12D: Franklinville	   85   	  Improbable   Thickest layer   Bottom layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	    0.00  0.00
12E: Franklinville	   85   	  Improbable   Thickest layer   Bottom layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	  0.00  0.00
14B: Hornellsville	   85   	  Improbable   Bottom layer   Thickest layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00
14C: Hornellsville	   85   	  Improbable   Bottom layer   Thickest layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00

Table 14.—Construction Materials—Continued

Map symbol and soil name	Pct.	   Potential source   gravel	of	   Potential source   sand	of
	map  unit	 		 	
	<u> </u>	Rating class	Value	Rating class	Value
15B: Willdin	     85   	  Improbable   Thickest layer   Bottom layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	    0.00  0.00
15C: Willdin	   85   	  Improbable   Thickest layer   Bottom layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	0.00
15D: Willdin	   85   	  Improbable   Thickest layer   Bottom layer	  0.00  0.00	  Improbable   Bottom layer   Thickest layer	0.00
16A: Almond	   80   	  Improbable   Thickest layer   Bottom layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	  0.00  0.00
16B: Almond	   80   	  Improbable   Thickest layer   Bottom layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	  0.00  0.00
16C: Almond	   80 	  Improbable   Thickest layer   Bottom layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	0.00
17B: Salamanca	   80 	  Improbable   Bottom layer   Thickest layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	0.00
17C: Salamanca	   80 	  Improbable   Bottom layer   Thickest layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00
17D: Salamanca	   80 	  Improbable   Bottom layer   Thickest layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00
17E: Salamanca	     80   	  Improbable   Bottom layer   Thickest layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	0.00
18A: Pope	   85   	  Improbable   Thickest layer   Bottom layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00
19A: Olean	   85     	  Probable   Thickest layer   Bottom layer	    0.00  0.12	  Probable   Thickest layer   Bottom layer	    0.00  0.07

Table 14.—Construction Materials—Continued

Map symbol and soil name	Pct. of map unit	gravel	of	Potential source sand	of	
	i unit	Rating class	Value	   Rating class	Value	
19B: Olean	     85 	Probable Thickest layer Bottom layer	0.00	Probable Thickest layer Bottom layer	0.00	
20A: Unadilla	     85   	  Improbable   Thickest layer   Bottom layer	    0.00  0.00	  Probable   Thickest layer   Bottom layer	    0.00  0.03	
20B: Unadilla	   85   	  Improbable   Thickest layer   Bottom layer	    0.00  0.00	  Probable   Thickest layer   Bottom layer	  0.00  0.03	
20C: Unadilla	   85   	  Improbable   Thickest layer   Bottom layer	    0.00  0.00	   Probable   Thickest layer   Bottom layer	    0.00  0.03	
20D: Unadilla	   85   	  Improbable   Thickest layer   Bottom layer	    0.00  0.00	  Probable   Thickest layer   Bottom layer	    0.00  0.03	
22A: Allard	   85   	   Probable   Thickest layer   Bottom layer	0.00	  Probable   Thickest layer   Bottom layer	    0.00  0.86	
22B: Allard	     85   	   Probable   Thickest layer   Bottom layer	0.00	  Probable   Thickest layer   Bottom layer	    0.00  0.86	
25A: Chenango	   85   	   Probable   Thickest layer   Bottom layer	    0.00  0.12	   Probable   Thickest layer   Bottom layer	    0.00  0.86	
25B: Chenango	   85 	   Probable   Thickest layer   Bottom layer	    0.00  0.12	   Probable   Thickest layer   Bottom layer	    0.00  0.86	
25C: Chenango	   85   	  Probable   Thickest layer   Bottom layer	    0.00  0.12	  Probable   Thickest layer   Bottom layer	  0.00  0.86	
25D: Chenango	   85   	   Probable   Thickest layer   Bottom layer	    0.00  0.12	Probable Thickest layer Bottom layer	    0.00  0.86	
25E: Chenango	   80   	   Probable   Thickest layer   Bottom layer	    0.00  0.12	Probable Thickest layer Bottom layer	    0.00  0.86	

Table 14.—Construction Materials—Continued

Map symbol and soil name	Pct. of map	gravel	of	Potential source sand	of	
	unit	!	Value	Rating class	Value	
	<u> </u>	Rating class	varue		Value	
25F: Chenango	   80   	  Probable   Thickest layer  Bottom layer	    0.00  0.12	  Probable   Thickest layer  Bottom layer	    0.00  0.86	
26A: Chenango, fan	   80   	  Probable   Thickest layer   Bottom layer	    0.00  0.12	  Probable   Thickest layer   Bottom layer	    0.00  0.07	
26B: Chenango, fan	   80   	  Probable   Thickest layer   Bottom layer	    0.00  0.12	  Probable   Thickest layer   Bottom layer	    0.00  0.07	
27A: Castile	   85   	  Improbable   Thickest layer   Bottom layer	    0.00  0.00	  Probable   Thickest layer   Bottom layer	    0.00  0.86	
27B: Castile	   85   	  Improbable   Thickest layer   Bottom layer	    0.00  0.00	   Probable   Thickest layer   Bottom layer	    0.00  0.86	
28A: Scio	     85   	  Improbable   Thickest layer   Bottom layer	0.00	  Probable   Thickest layer   Bottom layer	    0.00  0.07	
29A: Chenango	     85   	  Probable   Thickest layer   Bottom layer	    0.00  0.12	  Probable   Thickest layer   Bottom layer	    0.03  0.07	
29B: Chenango	     85   	   Probable   Thickest layer   Bottom layer	    0.00  0.12	  Probable   Thickest layer   Bottom layer	    0.03  0.07	
29C: Chenango	   85   	   Probable   Thickest layer   Bottom layer	    0.00  0.12	   Probable   Thickest layer   Bottom layer	    0.03  0.07	
29D: Chenango	     85   	   Probable   Thickest layer   Bottom layer	    0.00  0.12	  Probable   Thickest layer   Bottom layer	    0.03  0.07	
29E: Chenango	     85   	  Probable   Thickest layer   Bottom layer	    0.00  0.12	  Probable   Thickest layer   Bottom layer	    0.03  0.07	
31B: Collamer	     85   	  Improbable   Bottom layer   Thickest layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	    0.00  0.00	

Table 14.—Construction Materials—Continued

Map symbol and soil name	Pct. of map	Potential source gravel	of	Potential source sand	of
	unit 	   Rating class	Value	Rating class	Value
31C:					
Collamer	   85   	  Improbable   Bottom layer   Thickest layer	  0.00  0.00	   Improbable   Bottom layer   Thickest layer	0.00
32A: Churchville	   85   	  Improbable   Bottom layer   Thickest layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	    0.00  0.00
32B: Churchville	   85   	  Improbable   Bottom layer   Thickest layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	    0.00  0.00
33A: Wallington	   85   	  Improbable   Bottom layer   Thickest layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	    0.00  0.00
34: Getzville	   80   	  Improbable   Bottom layer   Thickest layer	0.00	Probable   Thickest layer   Bottom layer	    0.00  0.86
35A: Rhinebeck	   80 	  Improbable   Bottom layer   Thickest layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00
35B: Rhinebeck	   80   	  Improbable   Bottom layer   Thickest layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00
35C: Rhinebeck	   80 	  Improbable   Bottom layer   Thickest layer	  0.00  0.00	  Improbable   Bottom layer   Thickest layer	    0.00  0.00
36: Canadice	     75   	  Improbable   Bottom layer   Thickest layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00
37A: Tonawanda	     80   	  Improbable   Bottom layer   Thickest layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	    0.00  0.00
37B: Tonawanda	   80   	  Improbable   Bottom layer   Thickest layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00
38A: Niagara	     85   	  Improbable   Bottom layer   Thickest layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	0.00

Table 14.—Construction Materials—Continued

Map symbol and soil name	Pct. of map	Potential source gravel	of	Potential source sand	of
	unit	Rating class	Value	Rating class	Value
38B: Niagara	     85 	  Improbable   Bottom layer   Thickest layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00
39A: Halsey	     85 	Improbable Thickest layer Bottom layer	    0.00  0.00	Probable Thickest layer Bottom layer	    0.00  0.86
40A: Williamson	     85   	  Improbable   Bottom layer   Thickest layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	    0.00  0.00
40B: Williamson	     85 	  Improbable   Bottom layer   Thickest layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	0.00
40C: Williamson	     85   	  Improbable   Bottom layer   Thickest layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	0.00
41A: Barcelona	     85 	  Improbable   Bottom layer   Thickest layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	0.00
41B: Barcelona	   85 	  Improbable   Bottom layer   Thickest layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	0.00
42A: Elnora	   80 	  Improbable   Bottom layer   Thickest layer	    0.00  0.00	  Probable   Thickest layer   Bottom layer	    0.02  0.36
42B: Elnora	   80 	  Improbable   Bottom layer   Thickest layer	    0.00  0.00	  Probable   Thickest layer   Bottom layer	    0.02  0.36
43: Canandaigua, silt loam	       80 	    Improbable   Bottom layer   Thickest layer	      0.00  0.00	    Improbable   Bottom layer   Thickest layer	      0.00  0.00
44: Canandaigua, mucky silt loam	     85   	  Improbable   Bottom layer   Thickest layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	    0.00  0.00
45: Canandaigua, acid substratum	     80   	  Improbable   Bottom layer   Thickest layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	    0.00  0.00

Table 14.—Construction Materials—Continued

Map symbol and soil name	Pct. of map	gravel	of	Potential source sand	of
	unit 	   Rating class	Value	Rating class	Value
46.			İ		
46: Swormville	   85   	  Improbable   Bottom layer   Thickest layer	    0.00  0.00	  Probable   Thickest layer   Bottom layer	  0.00  0.86
47A: Minoa	   80   	  Improbable   Bottom layer   Thickest layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00
48A: Colonie	   80   	  Improbable   Bottom layer   Thickest layer	0.00	  Probable   Thickest layer  Bottom layer	    0.02  0.36
48B: Colonie	   80   	  Improbable   Bottom layer   Thickest layer	0.00	  Probable   Thickest layer  Bottom layer	    0.02  0.36
48C: Colonie	   80   	  Improbable   Bottom layer   Thickest layer	0.00	  Probable   Thickest layer   Bottom layer	    0.02  0.36
49A: Red Hook	     85   	  Improbable   Thickest layer   Bottom layer	    0.00  0.00	  Probable   Thickest layer   Bottom layer	0.00
50A: Canaseraga	   85   	  Improbable   Bottom layer   Thickest layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00
50B: Canaseraga	   85   	  Improbable   Bottom layer   Thickest layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	0.00
50C: Canaseraga	   85   	  Improbable   Bottom layer   Thickest layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	0.00
51B: Chadakoin	   85   	  Improbable   Bottom layer   Thickest layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00
51C: Chadakoin	     85   	  Improbable   Bottom layer   Thickest layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00
51D: Chadakoin	   85   	  Improbable   Bottom layer   Thickest layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00

Table 14.—Construction Materials—Continued

Map symbol and soil name	Pct. of map	gravel	e of	Potential source sand	e of
	unit 	Rating class	Value	Rating class	Value
51E:					
Chadakoin	85	   Improbable   Bottom layer   Thickest layer	0.00	   Improbable   Bottom layer   Thickest layer	0.00
51F: Chadakoin	     85   	  Improbable   Bottom layer   Thickest layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00
52B: Valois	     85 	  Probable   Thickest layer   Bottom layer	0.00	  Probable   Thickest layer   Bottom layer	0.00
52C: Valois	     85 	  Probable   Thickest layer   Bottom layer	0.00	  Probable   Thickest layer   Bottom layer	0.00
52D: Valois	     80 	  Probable   Thickest layer   Bottom layer	0.00	  Probable   Thickest layer   Bottom layer	0.00
52E: Valois	     80 	  Probable   Thickest layer   Bottom layer	0.00	  Probable   Thickest layer   Bottom layer	0.00
52F: Valois	     80 	Probable Thickest layer Bottom layer	0.00	Probable Thickest layer Bottom layer	0.00
53C: Valois	     30 	   Probable   Thickest layer   Bottom layer	0.00	  Probable   Thickest layer   Bottom layer	0.00
Volusia	   25   	  Improbable   Thickest layer   Bottom layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00
Mardin	20	  Improbable   Thickest layer   Bottom layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00
55A: Darien	   85   	  Improbable   Thickest layer   Bottom layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00
55B: Darien	     85 	  Improbable   Thickest layer   Bottom layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00
55C: Darien	     85   	  Improbable   Thickest layer   Bottom layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00

Table 14.—Construction Materials—Continued

Map symbol and soil name	Pct. of map	of gravel		Potential source of sand	
	unit 	Rating class	  Value	Rating class	Value
56B: Chautauqua	     80 	Improbable Bottom layer Thickest layer	0.00	Improbable Bottom layer Thickest layer	0.00
56C: Chautauqua	     80 	  Improbable   Bottom layer   Thickest layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	0.00
56D: Chautauqua	     80   	  Improbable   Bottom layer   Thickest layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	    0.00  0.00
57A: Busti	   80   	  Improbable   Bottom layer   Thickest layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	0.00
57B: Busti	   80 	  Improbable   Bottom layer   Thickest layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	0.00
57C: Busti	     80   	  Improbable   Bottom layer   Thickest layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	    0.00  0.00
58B: Rushford	   80   	  Improbable   Bottom layer   Thickest layer	  0.00  0.00	  Improbable   Bottom layer   Thickest layer	0.00
58C: Rushford	   80   	  Improbable   Bottom layer   Thickest layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	  0.00  0.00
59B: Yorkshire	   85   	   Improbable   Thickest layer   Bottom layer	  0.00  0.00	  Improbable   Bottom layer   Thickest layer	    0.00  0.00
59C: Yorkshire	   85   	   Improbable   Thickest layer   Bottom layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	    0.00  0.00
59D: Yorkshire	   85   	  Improbable   Thickest layer   Bottom layer	  0.00  0.00	  Improbable   Bottom layer   Thickest layer	0.00
60A: Napoli	   80   	  Improbable   Thickest layer   Bottom layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	0.00
60B: Napoli	     80   	  Improbable   Thickest layer   Bottom layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00

Table 14.—Construction Materials—Continued

Map symbol and soil name	Pct. of map	gravel		Potential source of sand		
ur	unit 	Rating class	Value	Rating class	Value	
60C: Napoli	     80 	  Improbable   Thickest layer   Bottom layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00	
60D: Napoli	     80 	  Improbable   Thickest layer   Bottom layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00	
61B: Schuyler	     80   	  Improbable   Thickest layer   Bottom layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00	
61C: Schuyler	   80   	  Improbable   Thickest layer   Bottom layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00	
61D: Schuyler	   80 	  Improbable   Thickest layer   Bottom layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00	
61E: Schuyler	     80   	  Improbable   Thickest layer   Bottom layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00	
61F: Schuyler	     80   	  Improbable   Thickest layer   Bottom layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00	
62B: Mardin	     85   	  Improbable   Thickest layer   Bottom layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00	
62C: Mardin	     85   	  Improbable   Thickest layer   Bottom layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00	
62D: Mardin	   85   	  Improbable   Thickest layer   Bottom layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00	
63B: Langford	   85   	  Improbable   Bottom layer   Thickest layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00	
63C: Langford	   85   	  Improbable   Bottom layer   Thickest layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00	
63D: Langford	     85   	  Improbable   Bottom layer   Thickest layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00	

Table 14.—Construction Materials—Continued

Map symbol and soil name	Pct. of map	Potential source gravel	of	Potential source sand	of
	unit	Rating class	  Value	Rating class	Value
	<u> </u>	Rating class	value	Rating Class	Value
64C: Mardin	   85   	  Improbable   Thickest layer   Bottom layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	    0.00  0.00
66B: Volusia	   80   	  Improbable   Thickest layer   Bottom layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	0.00
67A: Dalton	   80   	  Improbable   Bottom layer   Thickest layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00
67B: Dalton	   80   	  Improbable   Bottom layer   Thickest layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00
68A: Volusia	   80   	Improbable   Thickest layer   Bottom layer	0.00	Improbable   Bottom layer   Thickest layer	0.00
68B: Volusia	     80   	  Improbable   Thickest layer   Bottom layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	    0.00  0.00
68C: Volusia	     80   	  Improbable   Thickest layer   Bottom layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	0.00
69A: Erie	   80   	  Improbable   Thickest layer   Bottom layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00
69B: Erie	   80   	  Improbable   Thickest layer   Bottom layer	0.00	  Improbable   Bottom layer   Thickest layer	    0.00  0.00
69C: Erie	   80   	  Improbable   Thickest layer   Bottom layer	  0.00  0.00	  Improbable   Bottom layer   Thickest layer	0.00
71E: Mongaup	   85   	  Improbable   Bottom layer   Thickest layer	  0.00  0.00	  Improbable   Bottom layer   Thickest layer	0.00
71F: Mongaup	   85 	  Improbable   Bottom layer   Thickest layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	0.00

Table 14.—Construction Materials—Continued

Map symbol and soil name	Pct. of map	gravel		Potential source of sand	
	unit 	Rating class	Value	Rating class	Value
72B: Towerville	     80   	  Improbable   Thickest layer   Bottom layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00
72C: Towerville	   80   	   Improbable   Thickest layer   Bottom layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00
72D: Towerville	     80   	  Improbable   Thickest layer   Bottom layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00
72E: Towerville	     80   	  Improbable   Thickest layer   Bottom layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00
72F: Towerville	     80 	  Improbable   Thickest layer   Bottom layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00
73B: Gretor	     80 	  Improbable   Bottom layer   Thickest layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00
73C: Gretor	     80   	  Improbable   Bottom layer   Thickest layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00
74: Ashville	     80   	  Improbable   Bottom layer   Thickest layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00
75: Alden	     85   	  Improbable   Bottom layer   Thickest layer	0.00	  Improbable   Thickest layer   Bottom layer	0.00
76A: Orpark	   80   	  Improbable   Bottom layer   Thickest layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00
76B: Orpark	   80   	  Improbable   Bottom layer   Thickest layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00
76C: Orpark	     80   	  Improbable   Bottom layer   Thickest layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00
77A: Chippewa	     80 	Improbable   Bottom layer   Thickest layer	0.00	Improbable   Bottom layer   Thickest layer	0.00

Table 14.—Construction Materials—Continued

Map symbol and soil name	Pct. of map	Potential source gravel	of	Potential source sand	of
	unit	Rating class	Value	Rating class	Value
78A: Hornell	     80 	  Improbable   Thickest layer   Bottom layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	    0.00  0.00
78B: Hornell	     80 	  Improbable   Thickest layer   Bottom layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	    0.00  0.00
78C: Hornell	     80 	  Improbable   Thickest layer   Bottom layer	0.00	  Improbable   Bottom layer   Thickest layer	    0.00  0.00
78D: Hornell	     80 	  Improbable   Thickest layer   Bottom layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	    0.00  0.00
78F: Hornell	   40 	  Improbable   Thickest layer   Bottom layer	0.00	  Improbable   Bottom layer   Thickest layer	  0.00  0.00
Hudson	   35   	  Improbable   Bottom layer   Thickest layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	    0.00  0.00
79B: Mongaup	     85 	  Improbable   Bottom layer   Thickest layer	0.00	  Improbable   Bottom layer   Thickest layer	    0.00  0.00
79C: Mongaup	     85   	  Improbable   Bottom layer   Thickest layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	    0.00  0.00
79D: Mongaup	     85   	  Improbable   Bottom layer   Thickest layer	0.00	  Improbable   Bottom layer   Thickest layer	    0.00  0.00
79E: Mongaup	   85   	  Improbable   Bottom layer   Thickest layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	    0.00  0.00
79F: Mongaup	   85   	  Improbable   Bottom layer   Thickest layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	    0.00  0.00
80A: Fremont	   80 	  Improbable   Thickest layer   Bottom layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	    0.00  0.00
80B: Fremont	     80   	  Improbable   Thickest layer   Bottom layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00

Table 14.—Construction Materials—Continued

Map symbol and soil name	Pct. of map	gravel		Potential source of sand	
	unit 	Rating class	Value	Rating class	Value
80C: Fremont	     80 	  Improbable   Thickest layer   Bottom layer	0.00	  Improbable   Bottom layer   Thickest layer	    0.00  0.00
81B: Varysburg	     85   	  Improbable   Bottom layer   Thickest layer	0.00	  Improbable   Bottom layer   Thickest layer	    0.00  0.00
81C: Varysburg	     85   	  Improbable   Bottom layer   Thickest layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00
81D: Varysburg	   85 	  Improbable   Bottom layer   Thickest layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00
81E: Varysburg	   85 	  Improbable   Bottom layer   Thickest layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00
82F: Rock outcrop	   50 	  Not Rated 		  Not Rated 	     
Manlius	   30   	  Improbable   Thickest layer   Bottom layer	0.00	  Improbable   Bottom layer   Thickest layer	    0.00  0.00
84B: Elko	     85   	  Improbable   Thickest layer   Bottom layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00
84C: Elko	   85   	  Improbable   Thickest layer   Bottom layer	0.00	Improbable Bottom layer Thickest layer	    0.00  0.00
85B: Onoville	   85   	  Improbable   Thickest layer   Bottom layer	0.00	Improbable Bottom layer Thickest layer	    0.00  0.00
85C: Onoville	   85   	  Improbable   Thickest layer   Bottom layer	0.00	  Improbable   Bottom layer   Thickest layer	    0.00  0.00
85D: Onoville	   85   	  Improbable   Thickest layer   Bottom layer	0.00	  Improbable   Bottom layer   Thickest layer	    0.00  0.00
86B: Eldred	     85   	  Improbable   Thickest layer   Bottom layer	0.00	  Improbable   Bottom layer   Thickest layer	    0.00  0.00

Table 14.—Construction Materials—Continued

Map symbol and soil name	Pct. of map	f gravel		Potential source of sand		
	unit 	Rating class	Value	Rating class	Value	
86C: Eldred	     85 	  Improbable   Thickest layer   Bottom layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00	
86D: Eldred	     85 	  Improbable   Thickest layer   Bottom layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00	
87B: Shongo	     80 	  Improbable   Bottom layer   Thickest layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00	
87C: Shongo	     80   	  Improbable   Bottom layer   Thickest layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00	
88A: Ivory	   85 	  Improbable   Thickest layer   Bottom layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00	
88B: Ivory	     85   	  Improbable   Thickest layer   Bottom layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00	
88C: Ivory	     85   	  Improbable   Thickest layer   Bottom layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00	
88D: Ivory	     85   	  Improbable   Thickest layer   Bottom layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00	
89B: Portville	     80   	  Improbable   Thickest layer   Bottom layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00	
89C: Portville	   80   	  Improbable   Thickest layer   Bottom layer	0.00	  Improbable   Bottom layer   Thickest layer	  0.00  0.00	
90A: Brinkerton	   85   	  Improbable   Thickest layer   Bottom layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00	
90B: Brinkerton	   85   	  Improbable   Thickest layer   Bottom layer	0.00	Improbable   Bottom layer   Thickest layer	0.00	
91A: Palms	   85 	  Improbable   Bottom layer   Thickest layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00	

Table 14.—Construction Materials—Continued

Map symbol and soil name	Pct. of map	gravel		Potential source of sand		
	unit 	Rating class	Value	Rating class	Value	
92:	 		İ		- <u> </u>	
Carlisle	85       	Improbable Bottom layer Thickest layer Organic matter content	0.00	Improbable Bottom layer Thickest layer Organic matter content	0.00	
93: Saprists, inundated-	   85   	Improbable   Bottom layer   Thickest layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00	
94B: Frewsburg	   80   	  Improbable   Thickest layer   Bottom layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00	
94C: Frewsburg	   80 	  Improbable   Thickest layer   Bottom layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00	
95B: Mandy	     85   	  Improbable   Bottom layer   Thickest layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00	
95C: Mandy	     85   	  Improbable   Bottom layer   Thickest layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00	
95D: Mandy	     85   	  Improbable   Bottom layer   Thickest layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00	
95E: Mandy	   85   	  Improbable   Bottom layer   Thickest layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00	
95F: Mandy	     85   	  Improbable   Bottom layer   Thickest layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00	
96B: Carrollton	   80   	  Improbable   Bottom layer   Thickest layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00	
96C: Carrollton	   80   	  Improbable   Bottom layer   Thickest layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00	
96D: Carrollton	   80   	  Improbable   Bottom layer   Thickest layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00	

Table 14.-Construction Materials-Continued

Map symbol and soil name	Pct. Potential source of of gravel		Potential source of sand		
	unit 	Rating class	Value	Rating class	Value
96E: Carrollton	     80 	  Improbable   Bottom layer   Thickest layer	    0.00  0.00	Improbable Bottom layer Thickest layer	0.00
96F: Carrollton	     80   	  Improbable   Bottom layer   Thickest layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	0.00
97B: Kinzua	     85   	  Improbable   Thickest layer   Bottom layer	    0.00  0.00	   Improbable   Bottom layer   Thickest layer	0.00
97C: Kinzua	     85   	  Improbable   Thickest layer   Bottom layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	0.00
97D: Kinzua	     85 	  Improbable   Thickest layer   Bottom layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00
97E: Kinzua	     85 	  Improbable   Thickest layer   Bottom layer	    0.00  0.00	Improbable   Bottom layer   Thickest layer	0.00
97F: Kinzua	     85 	  Improbable   Thickest layer   Bottom layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	0.00
98D: Kinzua	     85 	  Improbable   Thickest layer   Bottom layer	    0.00  0.00	Improbable   Bottom layer   Thickest layer	0.00
98E: Kinzua	     85   	  Improbable   Thickest layer   Bottom layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	0.00
99B: Buchanan	     85   	  Improbable   Thickest layer   Bottom layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	0.00
99C: Buchanan	     85 	  Improbable   Thickest layer   Bottom layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	0.00
99D: Buchanan	     85 	  Improbable   Thickest layer   Bottom layer	    0.00  0.00	Improbable   Bottom layer   Thickest layer	0.00
100: Udorthents	     85 	  Not Rated		    Not Rated	

Table 14.—Construction Materials—Continued

Map symbol and soil name	Pct. of map	Potential source	of	Potential source sand	of
	unit 	Rating class	Value	Rating class	Value
101: Udorthents, refuse substratum	       90	    Not Rated	       	Not Rated	
102C: Mandy	     40   	  Improbable   Bottom layer   Thickest layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	    0.00  0.00
Rock outcrop	35	Not Rated	ļ ļ	Not Rated	 
103C: Knapp Creek	     40 	Probable Thickest layer Bottom layer	    0.00  0.25	Probable Bottom layer Thickest layer	    0.03  0.03
Rock outcrop	   35 	  Not Rated 	   	  Not Rated 	   
104B: Flatiron	     80   	  Improbable   Thickest layer   Bottom layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	    0.00  0.00
104C: Flatiron	   80   	  Improbable   Thickest layer   Bottom layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	    0.00  0.00
104D: Flatiron	     80   	  Improbable   Thickest layer   Bottom layer	0.00	  Improbable   Bottom layer   Thickest layer	    0.00  0.00
104E: Flatiron	   80   	  Improbable   Thickest layer   Bottom layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	    0.00  0.00
108D: Hartleton	   85 	  Improbable   Bottom layer   Thickest layer	0.00	  Improbable   Bottom layer   Thickest layer	    0.00  0.00
108E: Hartleton	     85   	  Improbable   Bottom layer   Thickest layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	    0.00  0.00
108F: Hartleton	     85   	  Improbable   Bottom layer   Thickest layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	    0.00  0.00
131: Lamson	     85   	  Improbable   Bottom layer   Thickest layer	    0.00  0.00	Probable Thickest layer Bottom layer	    0.00  0.02

Table 14.—Construction Materials—Continued

Map symbol and soil name	Pct. of	of gravel		Potential source sand	of	
	unit	Rating class	Value	Rating class	Value	
		Racing Class	varue	Racing Class	varue	
132B: Wiscoy	   80   	  Improbable   Bottom layer   Thickest layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	    0.00  0.00	
132C: Wiscoy	     80   	  Improbable   Bottom layer   Thickest layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	0.00	
135C: Hudson	   85   	  Improbable   Bottom layer   Thickest layer	    0.00  0.00	Improbable Bottom layer Thickest layer	    0.00  0.00	
135D: Hudson	   85   	  Improbable   Bottom layer   Thickest layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	    0.00  0.00	
135E: Hudson	   85 	  Improbable   Bottom layer   Thickest layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	0.00	
140D: Dunkirk	     85   	  Improbable   Bottom layer   Thickest layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	0.00	
140E: Dunkirk	     85   	  Improbable   Bottom layer   Thickest layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	    0.00  0.00	
185C: Onoville	     85   	  Improbable   Thickest layer   Bottom layer	    0.00  0.00	   Improbable   Bottom layer   Thickest layer	0.00	
185D: Onoville	     85   	  Improbable   Thickest layer   Bottom layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	0.00	
187B: Shongo	     80   	  Improbable   Bottom layer   Thickest layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	    0.00  0.00	
187C: Shongo	     80 	  Improbable   Bottom layer   Thickest layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	    0.00  0.00	
188B: Cavode	     85   	  Improbable   Thickest layer   Bottom layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	    0.00  0.00	

Table 14.—Construction Materials—Continued

Map symbol and soil name	Pct. of map	gravel		Potential source sand	of
	unit				
	ļ	Rating class	Value	Rating class	Value
188C: Cavode	     85   	  Improbable   Thickest layer   Bottom layer	0.00	   Improbable   Bottom layer   Thickest layer	    0.00  0.00
188D: Cavode	     85   	  Improbable   Thickest layer   Bottom layer	0.00	  Improbable   Bottom layer   Thickest layer	    0.00  0.00
189B: Portville	   80   	  Improbable   Thickest layer   Bottom layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00
189C: Portville	   80   	   Improbable   Thickest layer   Bottom layer	0.00	  Improbable   Bottom layer   Thickest layer	    0.00  0.00
195C: Mandy	   85   	  Improbable   Bottom layer   Thickest layer	0.00	  Improbable   Bottom layer   Thickest layer	    0.00  0.00
195D: Mandy	     85 	   Improbable   Bottom layer   Thickest layer	0.00	Improbable Bottom layer Thickest layer	    0.00  0.00
195E: Mandy	     85   	  Improbable   Bottom layer   Thickest layer	0.00	   Improbable   Bottom layer   Thickest layer	    0.00  0.00
199C: Buchanan	     85   	   Improbable   Thickest layer   Bottom layer	0.00	   Improbable   Bottom layer   Thickest layer	    0.00  0.00
199D: Buchanan	     85 	  Improbable   Thickest layer   Bottom layer	0.00	  Improbable   Bottom layer   Thickest layer	    0.00  0.00
289B: Ceres	     85   	  Improbable   Thickest layer   Bottom layer	0.00	  Improbable   Bottom layer   Thickest layer	      0.00  0.00
289C: Ceres	   85   	  Improbable   Thickest layer   Bottom layer	0.00	  Improbable   Bottom layer   Thickest layer	    0.00  0.00
289D: Ceres	     85 	   Improbable   Thickest layer   Bottom layer	0.00	   Improbable   Bottom layer   Thickest layer	    0.00  0.00

Table 14.—Construction Materials—Continued

Map symbol and soil name	Pct. of map	Potential source gravel	of	Potential source sand	of
	unit 	   Rating class	Value	   Rating class	Value
289E:	   				
Ceres	85   	Improbable   Thickest layer   Bottom layer	  0.00  0.00	Improbable   Bottom layer   Thickest layer	  0.00  0.00
289F: Ceres	   85   	  Improbable   Thickest layer   Bottom layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	    0.00  0.00
400: Wakeville	   80   	  Improbable   Bottom layer   Thickest layer	    0.00  0.00	   Probable   Thickest layer   Bottom layer	    0.00  0.07
496B: Gilpin	   85   	  Improbable   Thickest layer   Bottom layer	    0.00  0.00	   Improbable   Bottom layer   Thickest layer	    0.00  0.00
496C: Gilpin	   85   	  Improbable   Thickest layer   Bottom layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	    0.00  0.00
496D: Gilpin	   85   	   Improbable   Thickest layer   Bottom layer	  0.00  0.00	  Improbable   Bottom layer   Thickest layer	    0.00  0.00
496E: Gilpin	   85   	  Improbable   Thickest layer   Bottom layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	0.00
496F: Gilpin	   85 	  Improbable   Thickest layer   Bottom layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00
497D: Rayne	   80 	   Improbable   Thickest layer   Bottom layer	0.00	   Improbable   Bottom layer   Thickest layer	0.00
497E: Rayne	     80   	  Improbable   Thickest layer   Bottom layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00
497F: Rayne	   80   	  Improbable   Thickest layer   Bottom layer	    0.00  0.00	  Improbable   Bottom layer   Thickest layer	    0.00  0.00
498E: Rayne	   80   	  Improbable   Thickest layer   Bottom layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00

Table 14.—Construction Materials—Continued

Map symbol and soil name	Pct. of map	Potential source gravel	Potential source sand	of	
	unit 	Rating class	Value	Rating class	Value
800: Holderton	     80 	Improbable Bottom layer Thickest layer	0.00	  Improbable   Bottom layer   Thickest layer	0.00
PG: Pits, gravel	     85 	  Not Rated 	     	  Not Rated 	     
Ur: Urban land	     85 	  Not Rated 	     	  Not Rated 	     
W: Water	    100   	    Not Rated 	     	    Not Rated 	       

## Table 15.—Source of Reclamation Material, Roadfill, and Topsoil

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 0.99. The smaller the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Potential source reclamation mater		Potential source roadfill	of	Potential source topsoil	of
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1:	į ——						j
Udifluvents	40	Poor	1	Good		Poor	
	i	Too sandy	0.00	į	İ	Too sandy	0.00
	İ	Organic matter	0.50	ĺ	İ	Hard to reclaim	0.00
		content low				(rock fragments)	
		Too acid	0.88	İ		Rock fragments	0.00
Fluvaquents	35	Poor		Poor		  Poor	
-	i	Too sandy	0.00	Wetness depth	0.00	Wetness depth	0.00
	i	Organic matter	0.50	i -	İ	Too sandy	0.00
	İ	content low	İ		İ		İ
		Too acid	0.88			Hard to reclaim	0.00
			ļ	ļ	ļ	(rock fragments)	:
		 		]		Rock fragments	0.00
2:							
Hamlin	85	Fair		Good		Good	
	!	Organic matter	0.50	ļ			
		content low					
		Water erosion	0.68			 	
3:		 	ł				
Tioga	85	Fair	İ	Good	į	Good	i
_	i	Organic matter	0.50	İ	İ	İ	İ
	İ	content low	İ	ĺ	İ		İ
		Too acid	0.84	ļ			
		Water erosion	0.99	 		 	
4:							
Teel	85	Fair	İ	Fair	İ	Fair	İ
		Organic matter	0.50	Wetness depth	0.32	Wetness depth	0.32
		content low		ļ			
		Water erosion	0.68	1		 	
5 <b>:</b>	1	 					1
Wayland	85	Fair	i	Poor	İ	Poor	İ
	İ	Water erosion	0.90	Wetness depth	0.00	Wetness depth	0.00
		Too clayey	0.92			Too clayey	0.87
		Too acid	0.99				
6A:		 		 		 	
Wyalusing	85	Fair	İ	Poor	İ	Poor	İ
		Too acid	0.84	Wetness depth	0.00	Wetness depth	0.00
		Water erosion	0.99	ļ	ļ	Hard to reclaim	0.00
		 		 		(rock fragments)	
7A:							
Philo	85	Fair		Fair	İ	Fair	
		Too acid	0.54	Wetness depth	0.32	Wetness depth	0.32
		Organic matter	0.88			Too acid	0.98
		content low	0.00	 		 	
	1	Water erosion	0.99	I	1	I	1

Table 15.—Source of Reclamation Material, Roadfill, and Topsoil—Continued

Map symbol and soil name	Pct. of map unit	reclamation mater		Potential source of roadfill		Potential source of topsoil	
	 	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
8: Middlebury	     85   	  Fair   Organic matter   content low   Too acid	    0.50    0.84	  Fair   Wetness depth 	    0.32 	  Fair   Wetness depth   	0.32
	 	Water erosion 	0.99 				
9:	ļ	I		ļ		I	ļ
Pawling	85   	Fair   Water erosion 	0.68	Fair   Wetness depth 	0.32	Poor   Hard to reclaim   (rock fragments)	0.00
	j I	Too acid	0.84	 	j I	Wetness depth	0.32
10: Atkins	85	  Fair	İ	  Poor	İ	Poor	İ
	 	Too acid Organic matter	0.54	Wetness depth	0.00	Wetness depth Too clayey	0.00
	   	content low Too clayey	0.92			Hard to reclaim rock fragments)	0.92
	 					Too acid	0.98
11B: Ischua	   85	  Fair		  Poor		  Fair	
	ļ	Depth to bedrock	0.35	Depth to bedrock	!	Wetness depth	0.32
	   	Droughty Organic matter content low	0.36	Wetness depth   Low strength 	0.32	Depth to bedrock Rock fragments	0.35
	j 	Too acid	0.54		İ	Too acid	0.98
11C: Ischua	85	  Fair	İ	Poor	İ	  Fair	İ
		Depth to bedrock	0.35	Depth to bedrock	0.00	Wetness depth	0.32
	ļ	Droughty	0.36	Wetness depth	0.32	Depth to bedrock	0.35
	 	Organic matter content low	0.50	Low strength	0.78 	Slope 	0.37
	 	Too acid	0.54			Rock fragments Too acid	0.88
11D:	     0E	 		    -		    -	
Ischua	85 	Fair   Depth to bedrock	0.35	Poor   Depth to bedrock	0.00	Poor   Slope	0.00
	İ	Droughty	0.36	Wetness depth	0.32	Wetness depth	0.32
	j I	Organic matter content low	0.50	Slope	0.50	Depth to bedrock	0.35
		Too acid	0.54	Low strength	0.78	Rock fragments Too acid	0.88
11E:		 				 	
Ischua	85	Fair		Poor		Poor	
	 	Depth to bedrock	0.35	Depth to bedrock	!	Slope   Wetness depth	0.00
	 	Droughty Organic matter	0.36 0.50	Slope   Wetness depth	0.00 0.32	Wetness depth   Depth to bedrock	0.32
	   	content low Too acid	0.54	Low strength	0.78	Rock fragments	0.88

Table 15.—Source of Reclamation Material, Roadfill, and Topsoil—Continued

Map symbol and soil name	Pct. of map unit	Potential source reclamation mater		Potential source roadfill	of	Potential source topsoil	of
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Valu
11F: Ischua	   85         	   Fair   Depth to bedrock   Droughty   Organic matter   content low   Too acid	  0.35  0.36  0.50 	   Poor   Depth to bedrock   Slope   Wetness depth     Low strength	0.00	Poor   Slope   Wetness depth   Depth to bedrock   Rock fragments   Too acid	  0.00  0.32  0.35    0.88  0.98
12B: Franklinville	   85       	  Fair   Organic matter   content low   Too acid	    0.50    0.54	  Good 		  Poor   Hard to reclaim   (rock fragments)   Rock fragments   Too acid	    0.00    0.00  0.98
12C: Franklinville	   85         	  Fair   Organic matter   content low   Too acid	  0.50    0.54 	  Good   		Poor   Hard to reclaim   (rock fragments)   Rock fragments   Slope   Too acid	  0.00    0.00  0.37  0.98
12D: Franklinville	   85           	  Fair   Organic matter   content low   Too acid	  0.50    0.54	  Fair   Slope 	  0.50     	Poor   Slope   Hard to reclaim   (rock fragments)   Rock fragments   Too acid	0.00
12E: Franklinville	   85         	Fair   Organic matter   content low   Too acid	  0.50    0.54	Poor   Slope 	    0.00     	Poor   Slope   Hard to reclaim   (rock fragments)   Rock fragments   Too acid	0.00
14B: Hornellsville	   85         	Poor   Too clayey   Droughty   Too acid   Depth to bedrock   Water erosion	  0.00  0.49  0.50  0.84  0.99	Poor   Depth to bedrock   Low strength   Wetness depth   Shrink-swell	0.00	Poor   Too clayey   Wetness depth   Depth to bedrock   Too acid	  0.00  0.00  0.84  0.88
14C: Hornellsville	   85       	Poor   Too clayey   Droughty   Too acid   Depth to bedrock   Water erosion	  0.00  0.49  0.50  0.84  0.99	   Poor   Depth to bedrock   Low strength   Wetness depth   Shrink-swell	0.00	Poor   Too clayey   Wetness depth   Slope   Depth to bedrock   Too acid	  0.00  0.00  0.37  0.84  0.88

Table 15.—Source of Reclamation Material, Roadfill, and Topsoil—Continued

Map symbol and soil name	Pct. of map unit	reclamation mater		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and	Value
15B: Willdin	     85   	  Poor   Droughty     Too acid	0.00	  Fair   Wetness depth 	    0.18	  Poor   Hard to reclaim   (rock fragments)   Rock fragments	    0.00    0.00
	     	Organic matter content low	0.50		     	Hard to reclaim (dense layer) Wetness depth Too acid	0.10    0.18  0.76
15C: Willdin	85	Poor	İ	  Fair	İ	  Poor	İ
		Droughty Too acid Organic matter	0.00	Wetness depth   	0.18	Hard to reclaim (rock fragments) Rock fragments Hard to reclaim	0.00    0.00  0.10
	     	content low				(dense layer)   Wetness depth   Slope   Too acid	  0.18  0.37  0.76
15D: Willdin	     85	    Poor		    Fair		    Poor	
		Droughty   Too acid     Organic matter	0.00	Wetness depth   Slope 	0.18	Slope   Hard to reclaim   (rock fragments)   Rock fragments	0.00
	       	content low				Hard to reclaim (dense layer) Wetness depth Too acid	  0.10    0.18  0.76
16A:		 				  -	
Almond	80   	Fair   Too acid   Organic matter   content low	0.50	Poor   Wetness depth   	0.00	Poor   Rock fragments   Hard to reclaim   (rock fragments)	0.00
		Too clayey	0.92		   	Wetness depth   Too clayey   Too acid	0.00  0.60  0.88
16B: Almond	80	Fair	<u> </u>	Poor		Poor	
		Too acid Organic matter content low Too clayey	0.50	Wetness depth   	0.00	Rock fragments   Hard to reclaim   (rock fragments)   Wetness depth	0.00  0.00    0.00
		Too Clayey   				Too clayey Too acid	0.60
16C: Almond	80	Fair   Too acid	0.50	  Poor   Wetness depth	0.00	Poor   Rock fragments	0.00
		Organic matter content low Too clayey	0.50			Hard to reclaim (rock fragments) Wetness depth Slope	0.00    0.00  0.37
						Too clayey   Too acid	0.60

Table 15.—Source of Reclamation Material, Roadfill, and Topsoil—Continued

Map symbol and soil name	Pct. of map unit	Potential source reclamation mater		Potential source roadfill	of	Potential source topsoil	of
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
17B: Salamanca	   80           	  Fair   Organic matter   content low   Too acid   Too clayey	  0.50    0.54  0.92	  Fair   Wetness depth   	    0.32       	Poor   Rock fragments   Wetness depth   Hard to reclaim   (rock fragments)   Too clayey   Too acid	  0.00  0.32  0.32  0.60  0.98
17C: Salamanca	   80             	Fair   Organic matter   content low   Too acid   Too clayey	0.50	  Fair   Wetness depth   	0.32	Poor Rock fragments  Wetness depth Hard to reclaim (rock fragments) Slope Too clayey Too acid	0.00  0.32  0.32  0.37  0.60  0.98
17D: Salamanca	   80             	  Fair   Organic matter   content low   Too acid   Too clayey	  0.50    0.54  0.92	  Fair   Wetness depth     Slope	  0.32    0.50 	Poor   Slope   Rock fragments   Wetness depth   Hard to reclaim (rock fragments)   Too clayey   Too acid	  0.00  0.00  0.32  0.32    0.60  0.98
17E: Salamanca	   80             	Fair Organic matter content low Too acid Too clayey	0.50	   Poor   Slope   Wetness depth	0.00	Poor Slope Rock fragments Wetness depth Hard to reclaim (rock fragments) Too clayey Too acid	  0.00  0.32  0.32  0.60  0.98
18A: Pope	   85       	Fair   Too acid   Organic matter   content low   Water erosion	0.50	  Good   	         	  Fair   Too acid   	    0.98     
19A: Olean	   85       	  Fair   Organic matter   content low   Too acid   Water erosion	0.50	  Fair   Wetness depth   	    0.32     	  Poor   Hard to reclaim   (rock fragments)   Wetness depth   Too acid	0.00
19B: Olean	   85     	Fair   Organic matter   content low   Too acid   Water erosion	0.50	  Fair   Wetness depth   	    0.32   	  Poor   Hard to reclaim   (rock fragments)   Wetness depth   Too acid	  0.00    0.32  0.98

Table 15.—Source of Reclamation Material, Roadfill, and Topsoil—Continued

Map symbol and soil name	Pct. of map unit	reclamation mater		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
20A: Unadilla	   85       	   Fair   Water erosion     Organic matter   content low	0.06	  Good 		  Fair   Hard to reclaim   (rock fragments)   Too acid	    0.68    0.98
		Too acid	0.54			 	
20B: Unadilla	   85     	Fair Water erosion Organic matter content low	0.06	  Good 		  Fair   Hard to reclaim   (rock fragments)   Too acid	  0.68    0.98
20C: Unadilla	       85 	Too acid    Fair   Water erosion   Organic matter   content low	0.54	    Good 	         	  Fair   Slope   Hard to reclaim	        0.37  0.68
		Too acid	0.54	 		(rock fragments)   Too acid 	0.98
20D: Unadilla	   85     	Fair Water erosion Organic matter content low Too acid	0.06	  Fair   Slope 	  0.50   	Poor   Slope   Hard to reclaim   (rock fragments)   Too acid	  0.00  0.68    0.98
22A: Allard	     85   	  Fair   Water erosion   Organic matter   content low	0.06	  Good 		  Poor   Hard to reclaim   (rock fragments)   Too acid	0.00
22B:		Too acid	0.54				
Allard	85     	Fair Water erosion Organic matter content low Too acid	0.06	Good		   Hard to reclaim   (rock fragments)   Too acid	  0.00    0.98
25A:							
Chenango	85   	Fair   Organic matter   content low	0.50	Good   		Poor   Rock fragments	0.00
		Too acid     Droughty	0.54			Hard to reclaim (rock fragments) Too acid	0.00
25B: Chenango	   85       	Fair Organic matter content low Too acid Droughty	0.50	  Good 		Poor   Hard to reclaim   (rock fragments)   Rock fragments   Too acid	  0.00    0.00  0.98

Table 15.—Source of Reclamation Material, Roadfill, and Topsoil—Continued

Map symbol and soil name	Pct. of map unit	Potential source reclamation mater		Potential source roadfill	of	Potential source topsoil	of
	unit   	Rating class and limiting features	Value	Rating class and   limiting features	Value	Rating class and limiting features	Valu
25C: Chenango	   85 	Fair   Organic matter   content low	0.50	  Good 		Poor Rock fragments	0.00
	   	Too acid     Droughty 	0.54	 		Hard to reclaim   (rock fragments)   Slope   Too acid	0.00    0.37  0.98
25D: Chenango	     85	    Fair		      Fair		    Poor	
	   	Organic matter content low Too acid	0.50	Slope   	0.50	Slope     Rock fragments	0.00
	     	Droughty   	0.64			Hard to reclaim   (rock fragments)   Too acid	0.00
25E: Chenango	   80 	   Fair   Organic matter	0.50	  Poor   Slope	0.00	  Poor   Slope	0.00
	       	content low Too acid Droughty	0.54			   Rock fragments   Hard to reclaim   (rock fragments)   Too acid	0.00
25F: Chenango	     80	  Fair   Organic matter	0.50	Poor	0.00	Poor	0.00
	       	Organic Matter   content low   Too acid   Droughty	0.50    0.54  0.64	Slope     		Slope	0.00
26A:	İ İ		j   	  - 	   	Too acid	0.98
Chenango, fan	80   	Fair   Organic matter   content low	0.50	Good   		Poor Rock fragments	0.00
	   	Too acid Droughty	0.54	 		Hard to reclaim (rock fragments) Too acid	0.00
26B: Chenango, fan	     80	    Fair   Organic matter	0.50	    Good		    Poor   Rock fragments	0.00
	     	content low Too acid	0.54			Hard to reclaim (rock fragments)	0.00
27A:	     	Droughty 	0.83			Too acid	0.98
Castile	   85   	Fair   Droughty       Organic matter	0.22	  Fair   Wetness depth 	0.32	Poor Hard to reclaim (rock fragments) Rock fragments	0.00
	     	content low   Too acid	0.54			Rock fragments 	0.00

Table 15.—Source of Reclamation Material, Roadfill, and Topsoil—Continued

Map symbol and soil name	Pct. of map unit	Potential source reclamation mater		Potential source roadfill	of	Potential source topsoil	of
	 	Rating class and limiting features	Value	Rating class and   limiting features	Value	Rating class and limiting features	Value
27B: Castile	   85 	Fair Droughty Organic matter	  0.22    0.50	  Fair   Wetness depth 	    0.32 	Poor Hard to reclaim (rock fragments) Rock fragments	0.00
		content low Too acid	0.54		   	   Wetness depth   Too acid	0.32
28A: Scio	85	    Fair   Organic matter	0.50	    Fair   Wetness depth	0.32	    Fair   Wetness depth	0.32
		content low Too acid	0.54		   	Hard to reclaim (rock fragments)	:
29A:		Water erosion        Fair	0.68	      Good		Too acid        Poor	0.98   
Chenango	85   	organic matter   content low   Too acid	0.50	GOOd   		Rock fragments     Hard to reclaim	0.00
		Droughty	0.64			(rock fragments)   Too acid	0.98
29B: Chenango	85	  Fair   Organic matter   content low	0.50	  Good 	     	  Poor   Rock fragments	0.00
		Too acid  Droughty	0.54		   	Hard to reclaim (rock fragments) Too acid	0.00
29C: Chenango	85	  Fair   Organic matter	0.50	    Good 	     	  Poor   Rock fragments	0.00
		content low Too acid	0.54	 	   	Hard to reclaim (rock fragments)	0.00
29D:		Droughty   	0.64			Slope   Too acid 	0.37  0.98 
Chenango	   85 	  Fair   Organic matter   content low	0.50	  Fair   Slope 	  0.50	  Poor   Slope	0.00
		Too acid Droughty	0.54		     	Rock fragments Hard to reclaim (rock fragments) Too acid	0.00  0.00    0.98
29E: Chenango	   85 	  Fair   Organic matter   content low	0.50	  Poor   Slope	    0.00	  Poor   Slope	0.00
		Too acid Droughty	0.54			Rock fragments Hard to reclaim (rock fragments)	0.00

Table 15.—Source of Reclamation Material, Roadfill, and Topsoil—Continued

Map symbol and soil name	Pct. of map unit	Potential source reclamation mater		Potential source roadfill	e of	Potential source topsoil	of
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
31B: Collamer	   85     	   Fair   Organic matter   content low   Water erosion   Too acid	0.50	  Fair   Wetness depth 	0.32	  Fair   Wetness depth 	0.32
31C: Collamer	   85       	  Fair   Organic matter   content low   Water erosion   Too acid	0.50	  Fair   Wetness depth 	0.32	  Fair   Wetness depth     Slope	0.32
32A: Churchville	   85     	Fair   Too clayey   Organic matter   content low   Water erosion	0.18	  Poor   Wetness depth   	0.00	Poor   Wetness depth   Too clayey   Hard to reclaim   (rock fragments)	0.00
32B: Churchville	   85       	  Fair   Too clayey   Organic matter   content low   Water erosion	0.18	  Poor   Wetness depth 	0.00	  Poor   Wetness depth   Too clayey     Hard to reclaim   (rock fragments)	0.00
33A: Wallington	   85       	  Poor   Droughty   Water erosion   Organic matter   content low   Too acid	  0.00  0.06  0.50 	  Poor   Wetness depth 	0.00	  Poor   Wetness depth   Too acid	0.00
34: Getzville	   80       	Poor   Too sandy   Organic matter   content low   Water erosion   Too acid	0.00	  Poor   Wetness depth   	0.00	Poor   Wetness depth   Too sandy	0.00
35A: Rhinebeck	   80       	Poor   Too clayey   Organic matter   content low   Water erosion   Too acid	0.00	  Poor   Wetness depth   Shrink-swell	0.00	  Poor   Too clayey   Wetness depth	0.00
35B: Rhinebeck	   80       	Poor Too clayey Organic matter content low Water erosion Too acid	0.00	  Poor   Wetness depth   Shrink-swell 	0.00	   Poor   Too clayey   Wetness depth 	0.00

Table 15.—Source of Reclamation Material, Roadfill, and Topsoil—Continued

Map symbol and soil name	Pct. of map unit	Potential source reclamation mater		Potential source roadfill	of	Potential source of topsoil		
		Rating class and limiting features	Value	Rating class and   limiting features	Value	Rating class and limiting features	Value	
35C: Rhinebeck	80	Poor Too clayey Organic matter	0.00	    Poor   Wetness depth   Shrink-swell	    0.00  0.99	  Poor   Too clayey   Wetness depth	    0.00  0.00	
		content low Water erosion Too acid	0.68		   	   Slope 	0.37	
36:					 			
Canadice	75	Poor Too clayey Organic matter content low	0.00	  Poor   Wetness depth   Low strength	0.00	Poor   Wetness depth   Too clayey	0.00	
		Water erosion Too acid	0.68	Shrink-swell	0.87			
37A:						l		
Tonawanda	80	Fair Water erosion Organic matter content low Too acid	  0.06  0.50    0.97	  Poor   Wetness depth   	  0.00 	Poor   Wetness depth	  0.00 	
37B: Tonawanda	80	Fair Water erosion Organic matter content low	  0.06  0.50	  Poor   Wetness depth   	    0.00 	  Poor   Wetness depth   	    0.00 	
		Too acid	0.97			 		
38A: Niagara	85	Fair Water erosion Organic matter content low	0.06	  Poor   Wetness depth	0.00	  Poor   Wetness depth   Too clayey	0.00	
		Too clayey	0.92	İ	İ	i I	İ	
38B: Niagara	85	Fair Water erosion Organic matter content low	    0.06  0.50	  Poor   Wetness depth	0.00	Poor   Wetness depth   Too clayey	    0.00  0.60	
		Too clayey	0.92					
39A: Halsey	85	Poor		    Poor		Poor		
		Organic matter content low	0.00       	Wetness depth       	0.00       	Wetness depth     Rock fragments   Hard to reclaim   (rock fragments)	0.00    0.12  0.32	
40A: Williamson	85	Fair Water erosion Droughty Organic matter content low Too acid	  0.06  0.17  0.50 	  Fair   Wetness depth 	    0.22   	  Fair   Wetness depth   Too acid	  0.22  0.98 	

Table 15.—Source of Reclamation Material, Roadfill, and Topsoil—Continued

Map symbol and soil name	Pct.   of  map  unit	reclamation material		Potential source of   roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
40B:	 						
Williamson	85         	Fair Water erosion Droughty Organic matter content low Too acid	  0.06  0.17  0.50 	Fair   Wetness depth   	  0.22     	Fair   Wetness depth   Too acid	0.22
	ļ				į		
40C: Williamson	   85   	  Fair   Water erosion   Droughty   Organic matter	0.06 0.17 0.50	  Fair   Wetness depth 	0.22	  Fair   Wetness depth   Slope   Too acid	  0.22  0.37  0.98
		content low Too acid	0.54				
41A:	 						
Barcelona	85   	Fair Organic matter content low	0.50	Poor   Wetness depth	0.00	Poor   Hard to reclaim   (rock fragments)	!
	     	Water erosion   Too clayey   Too acid	0.68	Depth to bedrock Low strength	0.23	Wetness depth   Too clayey 	0.00
41B:							
Barcelona	85   	Fair   Organic matter   content low	0.50	Poor   Wetness depth 	0.00	Poor   Hard to reclaim   (rock fragments)	0.00
	   	Water erosion   Too clayey   Too acid	0.68  0.92  0.92	Depth to bedrock Low strength	0.23	Wetness depth   Too clayey 	0.00
42A:							
Elnora	80         	Poor   Wind erosion   Too sandy   Organic matter   content low   Droughty   Too acid	  0.00  0.36  0.50    0.67  0.84	Fair   Wetness depth    - 	  0.32     	Fair   Wetness depth   Too sandy   	0.32
42B: Elnora	   80     	Poor   Wind erosion   Too sandy   Organic matter   content low   Droughty	  0.00  0.36  0.50 	  Fair   Wetness depth   	  0.32     	   Fair   Wetness depth   Too sandy	0.32
		Too acid	0.84				
43: Canandaigua, silt							
loam	80     	Fair   Water erosion   Organic matter   content low   Too clayey	0.06	Poor   Wetness depth 	0.00	Poor   Wetness depth   Too clayey 	0.00

Table 15.—Source of Reclamation Material, Roadfill, and Topsoil—Continued

Map symbol and soil name	Pct. of map unit	Potential source reclamation mater		Potential source roadfill	of	Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
44:							
Canandaigua, mucky silt loam		  Fair		Poor		Poor	
SIIC IOAM		Water erosion   Organic matter   content low   Too clayey	0.06	Wetness depth	0.00	Wetness depth   Too clayey 	0.00
45:	İ	<u> </u>	İ		į		į
Canandaigua, acid	1	İ	1	İ		I 	
substratum	80	Fair	i	Poor		Poor	i
		Water erosion   Organic matter   content low	0.06	Wetness depth	0.00	Wetness depth   Too clayey	0.00
		Too acid	0.84				
		Too clayey	0.92				
46: Swormville	0 =	  Fair		Poor	İ	Poor	
Swormviile	65	Organic matter	0.50	Wetness depth	0.00	Wetness depth	0.00
		content low					
		Water erosion   Too acid	0.68				
47A:							
Minoa	80	Fair	İ	Poor	İ	Poor	İ
	İ	Organic matter content low Too acid	0.50	Wetness depth	0.00	Wetness depth	0.00
		Water erosion	0.99				
48A:							
Colonie	80	Fair		Good		Fair	
		Too sandy Organic matter content low	0.36	 		Too sandy	0.36
		Too acid Droughty	0.84	İ	j I		j I
40D -							
48B: Colonie	80	  Fair		  Good		  Fair	
		Too sandy	0.36			Too sandy	0.36
		Organic matter content low	0.50				
		Too acid Droughty	0.84				
400							
48C: Colonie	80	  Fair		Good		  Fair	
	İ	Too sandy	0.36	İ	İ	Too sandy	0.36
		Organic matter	0.50			Slope	0.37
		Too acid	0.84			   	
		Droughty 	0.90			[ 	
49A: Red Hook	85	  Fair		  Poor		Poor	
		Organic matter	0.50	Wetness depth	0.00	Rock fragments	0.00
		content low Too acid	0.97			Hard to reclaim	0.00
						(rock fragments)   Wetness depth	0.00

Table 15.—Source of Reclamation Material, Roadfill, and Topsoil—Continued

Map symbol and soil name	Pct. of map unit	Potential source reclamation mater		Potential source roadfill	of	Potential source topsoil	of
	unit	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
50A: Canaseraga	   85       	Fair   Water erosion   Droughty   Organic matter   content low   Too acid	0.06	  Fair   Wetness depth   	      0.14     	Fair   Hard to reclaim   (dense layer)   Wetness depth   Hard to reclaim   (rock fragments)	    0.05    0.14  0.92
50B: Canaseraga	   85         	Fair   Water erosion   Droughty   Organic matter   content low   Too acid	0.06	  Fair   Wetness depth   	      0.14     	   Fair   Hard to reclaim   (dense layer)   Wetness depth   Hard to reclaim   (rock fragments)	    0.05    0.14  0.92
50C: Canaseraga	   85           	Fair   Water erosion   Droughty   Organic matter   content low   Too acid	0.06	  Fair   Wetness depth   	    0.14         	Fair   Hard to reclaim   (dense layer)   Wetness depth   Slope   Hard to reclaim   (rock fragments)	  0.05    0.14  0.37    0.92
51B: Chadakoin	   85       	   Fair   Too acid   Organic matter   content low	0.32	  Good 		  Poor   Hard to reclaim   (rock fragments)   Rock fragments     Too acid	    0.00    0.12    0.88
51C: Chadakoin	   85         	  Fair   Too acid     Organic matter   content low	0.32	  Good   		   Poor   Hard to reclaim   (rock fragments)   Rock fragments   Slope   Too acid	    0.00    0.12    0.37  0.88
51D: Chadakoin	   85       	   Too acid   Organic matter   content low	    0.32  0.50	  Fair   Slope	    0.50     	Poor   Slope   Hard to reclaim   (rock fragments)   Rock fragments   Too acid	    0.00  0.00    0.12  0.88
51E: Chadakoin	   85       	  Fair   Too acid   Organic matter   content low	0.32	  Poor   Slope 	    0.00   	   Poor   Slope   Hard to reclaim   (rock fragments)   Rock fragments   Too acid	  0.00  0.00    0.12  0.88

Table 15.—Source of Reclamation Material, Roadfill, and Topsoil—Continued

Map symbol and soil name	Pct. of map unit	f   reclamation material		Potential source roadfill	of	Potential source topsoil	of
	unit	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
51F: Chadakoin	   85       	Fair Too acid Organic matter content low	0.32	  Poor   Slope 	0.00	   Poor   Slope   Hard to reclaim   (rock fragments)   Rock fragments   Too acid	  0.00  0.00    0.12  0.88
52B: Valois	   85     	Fair Too acid Organic matter content low	  0.20  0.50 	  Good 		   Poor   Rock fragments   Hard to reclaim   (rock fragments)   Too acid	0.00
52C: Valois	   85       	Fair Too acid Organic matter content low	0.20	  Good   		   Poor   Rock fragments   Hard to reclaim   (rock fragments)   Slope   Too acid	0.00
52D: Valois	   80       	Fair Too acid Organic matter content low	0.20	  Fair   Slope   	    0.50     	Poor   Slope   Rock fragments     Hard to reclaim   (rock fragments)   Too acid	0.00
52E: Valois	   80       	Fair Too acid Organic matter content low	0.20	  Poor   Slope 	0.00	   Poor   Slope   Rock fragments   Hard to reclaim   (rock fragments)   Too acid	    0.00  0.00    0.08    0.98
52F: Valois	     80       	Fair   Too acid   Organic matter   content low	    0.20  0.50 	  Poor   Slope 	0.00	Poor   Slope   Rock fragments   Hard to reclaim   (rock fragments)   Too acid	    0.00  0.00    0.08    0.98
53C: Valois	30	Fair Too acid Organic matter content low	0.20	  Good 		Poor   Rock fragments   Hard to reclaim   (rock fragments)   Slope   Too acid	      0.00  0.08

Table 15.—Source of Reclamation Material, Roadfill, and Topsoil—Continued

Map symbol and soil name	Pct. of map unit	Potential source reclamation mater		Potential source roadfill	of	Potential source topsoil	of
	   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
53C Volusia	   25     	Poor   Droughty	0.00	  Poor   Wetness depth 	    0.00   	Poor   Hard to reclaim   (dense layer)   Wetness depth   Rock fragments	0.00
		Content low			       	Hard to reclaim (rock fragments) Slope Too acid	0.08
Mardin	20             	Poor Droughty Organic matter content low Too acid	0.00	Fair   Wetness depth   	0.02	Poor   Hard to reclaim   (dense layer)   Wetness depth     Rock fragments   Hard to reclaim   (rock fragments)   Slope	  0.00    0.02    0.12  0.92 
55A: Darien	   85       	  Fair   Organic matter   content low   Too clayey   Too acid	    0.50    0.92  0.99	  Poor   Wetness depth 	0.00	Poor Hard to reclaim (dense layer) Wetness depth Too clayey Rock fragments	0.00
55B: Darien	   85         	Fair   Organic matter   content low   Too clayey   Too acid	0.50	  Poor   Wetness depth 	0.00	Poor Hard to reclaim (dense layer) Wetness depth Too clayey Rock fragments	0.00
55C: Darien	   85         	Fair Organic matter content low Too clayey Too acid	0.50	  Poor   Wetness depth	0.00	Poor Hard to reclaim (dense layer) Wetness depth Slope Too clayey Rock fragments	  0.00  0.00  0.37  0.60  0.88
56B: Chautauqua	   80     	  Fair   Organic matter   content low   Too acid	0.50	  Fair   Wetness depth 	    0.32     	   Poor   Rock fragments     Wetness depth   Hard to reclaim   (rock fragments)	  0.00    0.32  0.92
56C: Chautauqua	     80         	  Fair   Organic matter   content low   Too acid	0.50	  Fair   Wetness depth 	      0.32       	Poor   Rock fragments   Wetness depth   Slope   Hard to reclaim   (rock fragments)	    0.00    0.32  0.37  0.92

Table 15.—Source of Reclamation Material, Roadfill, and Topsoil—Continued

Map symbol and soil name	Pct. of map unit	Potential source reclamation mater		Potential source roadfill	of	Potential source topsoil	of
		Rating class and limiting features	Value	Rating class and	Value	Rating class and limiting features	Valu
56D: Chautauqua	80	  -  Fair   Organic matter   content low	0.50	  Fair   Wetness depth	0.32	  Poor   Slope	0.00
		Too acid	0.84	Slope   	0.50     	Rock fragments Wetness depth Hard to reclaim (rock fragments)	0.00  0.32  0.92
57A: Busti	80	  Fair   Organic matter	0.50	  Poor   Wetness depth	0.00	  Poor   Rock fragments	0.00
		content low   Too acid   	0.84			Wetness depth   Hard to reclaim   (rock fragments)	  0.00  0.68 
57B: Busti	80	  Fair   Organic matter	0.50	  Poor   Wetness depth	0.00	  Poor   Rock fragments	0.00
		content low   Too acid   	0.84			   Wetness depth   Hard to reclaim   (rock fragments)	0.00
57C: Busti	80	  Fair   Organic matter   content low	0.50	  Poor   Wetness depth	0.00	  Poor   Rock fragments	0.00
		Too acid	0.84			Wetness depth   Slope   Hard to reclaim   (rock fragments)	0.00  0.37  0.68
58B:							
Rushford	80   	Poor   Droughty 	0.00	Fair   Wetness depth 	0.27	Poor   Hard to reclaim   (dense layer)	0.00
		Too acid Organic matter content low	0.50			Rock fragments   Wetness depth 	0.00
	İ	Water erosion	0.68	İ	į	Too acid	0.98
58C: Rushford	80	    Poor		  Fair		    Poor	
		Droughty	0.00	Wetness depth	0.27	Hard to reclaim (dense layer)	0.00
	   	Too acid Organic matter content low	0.50  0.50 	 		Rock fragments   Wetness depth 	0.00
	į Į	Water erosion	0.68	 		Slope   Too acid	0.37
59B:							
Yorkshire	85   	Poor   Droughty	0.00	Fair   Wetness depth 	0.09	Poor   Hard to reclaim   (dense layer)	0.00
		Organic matter content low	0.50			Rock fragments	0.00
		Too acid Too clayey	0.54			Wetness depth Too clayey	0.09
						Hard to reclaim (rock fragments)	0.92

Table 15.—Source of Reclamation Material, Roadfill, and Topsoil—Continued

Map symbol and soil name	Pct.   Potential source o   of   reclamation materia   map     unit			Potential source roadfill	of	Potential source topsoil	of
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
59C: Yorkshire	   85             	Poor   Droughty	    0.00    0.50    0.54  0.92	   Fair   Wetness depth 	0.09	Poor Hard to reclaim (dense layer) Rock fragments Wetness depth Slope Too clayey Hard to reclaim (rock fragments)	   0.00   0.00   0.09   0.37   0.60   0.92
59D: Yorkshire	   85             	Poor   Droughty   Organic matter   content low   Too acid   Too clayey	  0.00  0.50    0.54  0.92	  Fair   Wetness depth   Slope	0.09	Poor Slope Hard to reclaim (dense layer) Rock fragments Wetness depth Too clayey Hard to reclaim (rock fragments)	  0.00  0.00    0.00  0.09  0.60  0.92
60A: Napoli	   80         	   Fair   Droughty   Too acid   Organic matter   content low   Too clayey	0.20	  Poor   Wetness depth   	0.00	Poor Wetness depth Rock fragments Hard to reclaim (dense layer) Hard to reclaim (rock fragments) Too clayey Too acid	0.00   0.00   0.05   0.50   0.60   0.92
60B: Napoli	   80             	   Fair   Droughty   Too acid   Organic matter   content low   Too clayey	0.20	  Poor   Wetness depth   	    0.00       	Poor   Wetness depth   Rock fragments   Hard to reclaim   (dense layer)   Hard to reclaim   (rock fragments)   Too clayey   Too acid	   0.00   0.00   0.05   0.50   0.60   0.92
60C: Napoli	   80             	Fair   Droughty   Too acid   Organic matter   content low   Too clayey	0.20	  Poor   Wetness depth   	0.00	Poor   Wetness depth   Rock fragments   Hard to reclaim   (dense layer)   Slope   Hard to reclaim   (rock fragments)   Too clayey   Too acid	0.00   0.00   0.05   0.37   0.50   0.60   0.92

Table 15.—Source of Reclamation Material, Roadfill, and Topsoil—Continued

Map symbol and soil name	Pct. of map unit	Potential source reclamation mater		Potential source	of	Potential source topsoil	of
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
60D: Napoli	   80             	Fair   Droughty   Too acid   Organic matter   content low   Too clayey	0.20	Poor Wetness depth Slope	0.00	Poor Slope Wetness depth Rock fragments Hard to reclaim (dense layer) Hard to reclaim (rock fragments) Too clayey Too acid	
61B: Schuyler	   80           	Fair   Too acid   Organic matter   content low   Water erosion	0.50	  Fair   Wetness depth 	0.32	Fair Wetness depth Too acid Rock fragments Hard to reclaim (dense layer) Hard to reclaim (rock fragments)	  0.32  0.76    0.88  0.90    0.92
61C: Schuyler	   80           	Fair   Too acid   Organic matter   content low   Water erosion	0.50	  Fair   Wetness depth 	0.32	Fair Wetness depth Slope Too acid Rock fragments Hard to reclaim (dense layer) Hard to reclaim (rock fragments)	  0.32  0.37  0.76  0.88  0.90 
61D: Schuyler	   80             	   Too acid   Organic matter   content low   Water erosion	0.50	Fair   Wetness depth   Slope	0.32	Poor Slope Wetness depth  Too acid Rock fragments Hard to reclaim (dense layer) Hard to reclaim (rock fragments)	  0.00  0.32  0.76  0.88  0.90  0.92
61E: Schuyler	80	   Fair   Too acid   Organic matter   content low   Water erosion	0.50	   Poor   Slope   Wetness depth 	0.00	Poor Slope Wetness depth Too acid Rock fragments Hard to reclaim (dense layer) Hard to reclaim (rock fragments)	   0.00   0.32   0.76   0.88   0.90   0.92

Table 15.—Source of Reclamation Material, Roadfill, and Topsoil—Continued

Map symbol and soil name	Pct. of map	Potential source reclamation mater	~ —	Potential source roadfill	of	Potential source topsoil	of
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
61F: Schuyler	   80               	   Fair   Too acid   Organic matter   content low   Water erosion	0.50	   Poor   Slope   Wetness depth	0.00	Poor   Slope   Wetness depth   Too acid   Rock fragments   Hard to reclaim   (dense layer)   Hard to reclaim   (rock fragments)	   0.00   0.32     0.76   0.88   0.90   0.92
62B: Mardin	   85           	Poor   Droughty   Organic matter   content low   Too acid	0.00	  Fair   Wetness depth 	    0.02       	Poor Hard to reclaim (dense layer) Wetness depth Rock fragments Hard to reclaim (rock fragments)	  0.00    0.02    0.12  0.92
62C: Mardin	   85             	Poor   Droughty   Organic matter   content low   Too acid	  0.00    0.50    0.54	Fair   Wetness depth 	0.02	Poor	  0.00    0.02    0.12  0.37  0.92
62D: Mardin	   85           	Poor   Droughty   Organic matter   content low   Too acid	  0.00  0.50    0.54	  Fair   Wetness depth   Slope	0.02	Poor   Slope   Hard to reclaim   (dense layer)   Wetness depth   Rock fragments   Hard to reclaim   (rock fragments)	  0.00  0.00    0.02  0.12  0.92
63B: Langford	   85       	Poor   Droughty   Organic matter   content low   Too acid	  0.00    0.50    0.68	  Fair   Wetness depth 	    0.29     	  Fair   Hard to reclaim   (dense layer)   Wetness depth	  0.16    0.29
63C: Langford	   85         	Poor   Droughty   Organic matter   content low   Too acid	0.00	  Fair   Wetness depth   	    0.29     	   Fair   Hard to reclaim   (dense layer)   Wetness depth     Slope	    0.16    0.29    0.37

Table 15.—Source of Reclamation Material, Roadfill, and Topsoil—Continued

Map symbol and soil name	  Pct.   of  map  unit	Potential source reclamation mater		Potential source roadfill	of	Potential source topsoil	of
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
63D: Langford	   85       	   Droughty   Organic matter   content low   Too acid	0.00	  Fair   Wetness depth   Slope	  0.29  0.50 	Poor   Slope   Hard to reclaim   (dense layer)   Wetness depth	  0.00  0.16    0.29
64C: Mardin	   85         	Poor Droughty Organic matter content low Too acid	0.00	  Fair   Wetness depth 	0.02	Poor Hard to reclaim (dense layer) Wetness depth Rock fragments Slope Hard to reclaim	  0.00  0.02  0.12  0.37  0.92
66B: Volusia	   80         	Poor   Droughty   Too acid   Organic matter   content low	0.00	  Poor   Wetness depth   	0.00	(rock fragments)	0.00
67A: Dalton	   80         	Fair   Droughty   Water erosion   Organic matter   content low   Too acid	  0.01  0.06  0.50 	  Poor   Wetness depth   	0.00	Poor   Hard to reclaim   (dense layer)   Wetness depth   Hard to reclaim   (rock fragments)	      0.00    0.68
67B: Dalton	   80         	Fair   Droughty   Water erosion   Organic matter   content low   Too acid	  0.01  0.06  0.50 	  Poor   Wetness depth   	0.00	   Poor   Hard to reclaim   (dense layer)   Wetness depth   Hard to reclaim   (rock fragments)	    0.00    0.00  0.68
68A: Volusia	   80   80       	Poor Droughty Too acid Organic matter content low	0.00	   Poor   Wetness depth   	0.00	Poor Hard to reclaim (dense layer) Wetness depth Rock fragments Hard to reclaim (rock fragments) Too acid	0.00

Table 15.—Source of Reclamation Material, Roadfill, and Topsoil—Continued

Map symbol and soil name	Pct. of map unit	Potential source reclamation mater		Potential source roadfill	of	Potential source topsoil	of
	   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
68B: Volusia	   80           	   Poor   Droughty   Too acid   Organic matter   content low	0.00	  Poor   Wetness depth   	0.00	Poor Hard to reclaim (dense layer) Wetness depth Rock fragments Hard to reclaim (rock fragments)	0.00
68C: Volusia	       80	    Poor   Droughty	        0.00	    Poor   Wetness depth	        0.00	Too acid Poor Hard to reclaim	0.99          0.00
	             	Too acid Organic matter content low	  0.20  0.50 			(dense layer) Wetness depth Rock fragments  Hard to reclaim (rock fragments) Slope Too acid	  0.00  0.00    0.08    0.37  0.99
69A: Erie	   80         	Poor   Droughty   Organic matter   content low   Too acid	0.00	  Poor   Wetness depth   	0.00	Poor Hard to reclaim (dense layer) Wetness depth Rock fragments Hard to reclaim (rock fragments)	0.00
69B: Erie	   80             	   Poor   Droughty     Organic matter   content low   Too acid	0.00	  Poor   Wetness depth   	0.00	Poor Hard to reclaim (dense layer) Wetness depth Rock fragments Hard to reclaim (rock fragments)	0.00
69C: Erie	   80           	Poor   Droughty   Organic matter   content low   Too acid	0.00	   Poor   Wetness depth   	0.00	Poor Hard to reclaim (dense layer) Wetness depth Rock fragments Slope Hard to reclaim (rock fragments)	  0.00  0.00  0.00  0.37  0.68
71E: Mongaup	   85     	  Fair   Droughty   Depth to bedrock   Too acid	  0.08  0.29  0.54	  Poor   Depth to bedrock   Slope 	0.00	Poor Slope Rock fragments Depth to bedrock Too acid	  0.00  0.00  0.29  0.98

Table 15.—Source of Reclamation Material, Roadfill, and Topsoil—Continued

Map symbol and soil name	Pct. of map unit	Potential source reclamation mater		Potential source of roadfill		Potential source of   topsoil 	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
71F: Mongaup	   85       	   Fair   Droughty   Depth to bedrock   Too acid	  0.08  0.29  0.54	  Poor   Depth to bedrock   Slope 	0.00	Poor Slope Rock fragments Depth to bedrock Too acid	  0.00  0.00  0.29  0.98
72B: Towerville	     80 	  -  Fair   Organic matter   content low	0.50	  Poor   Depth to bedrock	0.00	  Fair   Wetness depth	0.32
		Too acid Droughty Depth to bedrock	0.54  0.70  0.71	   Wetness depth 	0.32	Depth to bedrock Rock fragments Too acid	0.71
72C: Towerville	80	    Fair   Organic matter	0.50	    Poor   Depth to bedrock	      0.00	    Fair   Wetness depth	0.32
	       	content low Too acid Droughty Depth to bedrock	  0.54  0.70  0.71	- Wetness depth	  0.32     	Slope Depth to bedrock Rock fragments Too acid	  0.37  0.71  0.88  0.98
72D: Towerville	   80       	Fair   Organic matter   content low   Too acid   Droughty   Depth to bedrock	  0.50    0.54  0.70  0.71	  Poor   Depth to bedrock     Wetness depth   Slope	  0.00    0.32  0.50	Poor   Slope   Wetness depth   Depth to bedrock   Rock fragments	  0.00    0.32  0.71  0.88
72E:				 		Too acid	0.98
Towerville	80           	Fair   Organic matter   content low   Too acid   Droughty   Depth to bedrock	  0.50    0.54  0.70  0.71	Poor   Depth to bedrock     Slope   Wetness depth	0.00	Poor Slope Wetness depth Depth to bedrock Rock fragments Too acid	  0.00    0.32  0.71  0.88  0.98
72F: Towerville	   80     	Fair Organic matter content low Too acid Droughty	0.50	Poor Depth to bedrock Slope Wetness depth	0.00	Poor Slope Wetness depth Depth to bedrock	0.00
73B: Gretor	         80 	Depth to bedrock 	0.71          0.07  0.16  0.50	  -   Poor   Depth to bedrock   Wetness depth	0.00	Rock fragments Too acid  Poor Rock fragments Wetness depth Depth to bedrock	0.88  0.98          0.00  0.00
		content low Too acid	0.54			Too acid	0.98

Table 15.—Source of Reclamation Material, Roadfill, and Topsoil—Continued

Map symbol and soil name	Pct. of map unit	Potential source reclamation mater	Potential source roadfill	of	Potential source topsoil	of	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73C: Gretor	   80     	  Fair   Droughty   Depth to bedrock   Organic matter   content low   Too acid	  0.07  0.16  0.50 	  Poor   Depth to bedrock   Wetness depth 	0.00	   Poor   Rock fragments   Wetness depth   Depth to bedrock     Slope	  0.00  0.00  0.16 
74: Ashville	80	      Fair   Organic matter	0.50	       Poor   Wetness depth	0.00	Too acid      Poor   Wetness depth	0.98
		content low Water erosion	0.99		   	Hard to reclaim rock fragments)	0.92
75: Alden	85	  Fair   Organic matter   content low	0.50	  Poor   Wetness depth	0.00	Poor   Wetness depth	0.00
		Too clayey Too acid Water erosion	0.92  0.97    0.99		     	Too clayey Hard to reclaim (rock fragments)	0.60  0.92 
76A: Orpark	   80       	   Fair   Depth to bedrock   Organic matter   content low   Droughty   Too acid   Too clayey	  0.21  0.50    0.52  0.54  0.92	   Poor   Depth to bedrock   Wetness depth     Low strength	  0.00  0.00    0.78	Poor   Wetness depth   Depth to bedrock   Too clayey   Rock fragments   Too acid	  0.00  0.21    0.60  0.88  0.98
76B: Orpark	   80       	   Fair   Depth to bedrock   Organic matter   content low   Droughty   Too acid   Too clayey	   0.21   0.50   0.52   0.54   0.92	Poor   Depth to bedrock   Wetness depth     Low strength	  0.00  0.00    0.78	Poor   Wetness depth   Depth to bedrock   Too clayey   Rock fragments   Too acid	    0.00  0.21    0.60  0.88  0.98
76C: Orpark	   80         	Fair   Depth to bedrock   Organic matter   content low   Droughty   Too acid   Too clayey	   0.21   0.50   0.52   0.54   0.92	   Poor   Depth to bedrock   Wetness depth     Low strength	    0.00  0.00    0.78	Poor Wetness depth Depth to bedrock Slope Too clayey Rock fragments Too acid	  0.00  0.21    0.37  0.60  0.88  0.98
77A: Chippewa	   80       	Poor   Organic matter   content low   Droughty   Too acid	0.00	   Wetness depth   	    0.00     	Poor Hard to reclaim (dense layer) Wetness depth Rock fragments Hard to reclaim (rock fragments)	0.00

Table 15.—Source of Reclamation Material, Roadfill, and Topsoil—Continued

Map symbol and soil name	Pct. of map unit	Potential source reclamation mater		Potential source roadfill	of	Potential source topsoil	of
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
78A:							
Hornell	80	Poor		Poor		Poor	
	}	Too clayey Organic matter	0.00	Depth to bedrock Low strength	0.00	Too clayey Wetness depth	0.00
	}	content low	0.50	now strength	0.00	wethess depth	0.00
	i	Droughty	0.51	Wetness depth	0.00	Depth to bedrock	0.84
	İ	Too acid	0.54	Shrink-swell	0.87	Too acid	0.98
		Depth to bedrock Water erosion	0.84			 	
78B:				 		 	
Hornell	80	Poor	İ	Poor		Poor	
	İ	Too clayey	0.00	Depth to bedrock	0.00	Too clayey	0.00
		Organic matter content low	0.50	Low strength	0.00	Wetness depth	0.00
	ļ	Droughty	0.51	Wetness depth	0.00	Depth to bedrock	!
		Too acid	0.54	Shrink-swell	0.87	Too acid	0.98
		Depth to bedrock Water erosion	0.84				
78C:							
Hornell	80	Poor	!	Poor	!	Poor	
		Too clayey Organic matter	0.00  0.50	Depth to bedrock Low strength	0.00  0.00	Too clayey Wetness depth	0.00
		content low					
		Droughty	0.51		0.00	Slope	0.37
	-	Too acid Depth to bedrock	0.54	Shrink-swell	0.87	Depth to bedrock Too acid	0.84
		Water erosion	0.99			100 actu	
78D:							
Hornell	80	Poor		Poor		Poor	
		Too clayey Organic matter	0.00	Depth to bedrock Low strength	0.00	Slope   Too clayey	0.00
		content low	İ		İ		į
		Droughty Too acid	0.51	Wetness depth   Slope	0.00	Wetness depth Depth to bedrock	0.00
		Depth to bedrock	0.84	Slope   Shrink-swell	0.87	Too acid	0.98
		Water erosion	0.99				
78F:							
Hornell	40	Poor	0.00	Poor	:	Poor	0.00
	}	Too clayey Organic matter	0.00	Depth to bedrock   Slope	0.00	Slope   Too clayey	0.00
	1	content low		brobe	0.00	100 Clayey	0.00
	İ	Droughty	0.51	Low strength	0.00	Wetness depth	0.00
	ļ	Too acid	0.54	Wetness depth	0.00	Depth to bedrock	0.84
	 	Depth to bedrock Water erosion	0.84	Shrink-swell	0.87 	Too acid	0.98
Hudson	35	Poor		Poor	 	Poor	
		Too clayey	0.00	Slope	0.00	Slope	0.00
	İ	Organic matter	0.50	Low strength	0.00	Too clayey	0.00
	İ	Water erosion	0.68	Wetness depth	0.24	Wetness depth	0.24
	1	Too acid	0.97	Shrink-swell	0.87		

Table 15.—Source of Reclamation Material, Roadfill, and Topsoil—Continued

Map symbol and soil name	Pct. of map unit	reclamation mater	Potential source roadfill	of	Potential source topsoil	of	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
79B: Mongaup	85	   Fair   Droughty   Depth to bedrock   Too acid	  0.08  0.29  0.54	  Poor   Depth to bedrock	      0.00 	Poor   Rock fragments   Depth to bedrock   Too acid	    0.00  0.29  0.98
79C: Mongaup	   85     	   Fair   Droughty   Depth to bedrock   Too acid	  0.08  0.29  0.54	  Poor   Depth to bedrock   	    0.00   	   Poor   Rock fragments   Depth to bedrock   Slope   Too acid	  0.00  0.29  0.37  0.98
79D: Mongaup	   85     	   Fair   Droughty   Depth to bedrock   Too acid	  0.08  0.29  0.54	  Poor   Depth to bedrock   Slope	  0.00  0.50 	  Poor   Slope   Rock fragments   Depth to bedrock   Too acid	  0.00  0.00  0.29  0.98
79E: Mongaup	   85   	Fair   Droughty   Depth to bedrock   Too acid	  0.08  0.29  0.54	  Poor   Depth to bedrock   Slope	  0.00  0.00	Poor   Slope   Rock fragments   Depth to bedrock   Too acid	  0.00  0.00  0.29  0.98
79F: Mongaup	   85     	  Fair   Droughty   Depth to bedrock   Too acid	  0.08  0.29  0.54	  Poor   Depth to bedrock   Slope 	  0.00  0.00	  Poor   Slope   Rock fragments   Depth to bedrock   Too acid	0.00
80A: Fremont	   80       	Fair Organic matter content low Too acid Too clayey	0.50	  Poor   Wetness depth   	  0.00       	Poor Wetness depth Too clayey Rock fragments Hard to reclaim (rock fragments) Too acid	0.00
80B: Fremont	80	Fair   Organic matter   content low   Too acid   Too clayey	0.50	  Poor   Wetness depth   	    0.00       	Poor   Wetness depth     Too clayey   Rock fragments   Hard to reclaim   (rock fragments)   Too acid	  0.00  0.60  0.88  0.92 

Table 15.—Source of Reclamation Material, Roadfill, and Topsoil—Continued

Map symbol and soil name	Pct. of map unit	Potential source reclamation mater		Potential source roadfill	of	Potential source topsoil	of
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
80C: Fremont	   80             	   Fair   Organic matter   content low   Too acid   Too clayey	0.50	  Poor   Wetness depth   	  0.00         	Poor   Wetness depth   Slope   Too clayey   Rock fragments   Hard to reclaim   (rock fragments)   Too acid	  0.00    0.37  0.60  0.88  0.92 
81B: Varysburg	   85       	Fair   Organic matter   content low   Too acid	  0.50    0.54	  Fair   Wetness depth     Low strength	    0.65    0.78	   Poor   Rock fragments     Wetness depth   Too acid	  0.00    0.65  0.98
81C: Varysburg	   85       	  Fair   Organic matter   content low   Too acid	0.50	  Fair   Wetness depth     Low strength	0.65	Poor   Rock fragments   Slope   Wetness depth   Too acid	  0.00    0.37  0.65  0.98
81D: Varysburg	   85       	   Fair   Organic matter   content low   Too acid	    0.50    0.54	Fair   Slope   Wetness depth   Low strength	    0.50    0.65  0.78	  Poor   Slope     Rock fragments   Wetness depth   Too acid	    0.00    0.00  0.65  0.98
81E: Varysburg	     85     	   Fair   Organic matter   content low   Too acid	    0.50    0.54	   Poor   Slope   Wetness depth   Low strength	    0.00    0.65  0.78	Poor   Slope   Rock fragments   Wetness depth   Too acid	0.98     0.00   0.65   0.98
82F: Rock outcrop	50	    Not rated 		    Not rated 	     	    Not rated 	
Manlius	   30           	Poor   Droughty   Organic matter   content low   Too acid   Depth to bedrock	  0.00  0.50    0.54 	Poor   Depth to bedrock   Slope 	  0.00  0.00     	Poor   Slope   Rock fragments   Hard to reclaim   (dense layer)   Depth to bedrock   Too acid	  0.00  0.00    0.05    0.84  0.98
84B: Elko	   85           	   Fair   Too acid   Droughty   Organic matter   content low	  0.05  0.19  0.50 	  Fair   Wetness depth   Shrink-swell	  0.18  0.87   	   Fair   Rock fragments   Wetness depth   Hard to reclaim   (dense layer)   Hard to reclaim   (rock fragments)   Too acid	  0.12  0.18  0.20    0.32 

Table 15.—Source of Reclamation Material, Roadfill, and Topsoil—Continued

Map symbol and soil name	Pct. of map unit	Potential source reclamation mater	Potential source roadfill	of	Potential source topsoil	of	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
84C: Elko	   85   85           	Fair Too acid Droughty Organic matter content low	    0.05  0.19  0.50	  Fair   Wetness depth   Shrink-swell	0.18	Fair   Rock fragments   Wetness depth   Hard to reclaim   (dense layer)   Hard to reclaim   (rock fragments)   Slope   Too acid	  0.12  0.18  0.20    0.32    0.37  0.41
85B: Onoville	   85             	Fair Droughty Too acid Organic matter content low Too clayey	0.18	   Fair   Wetness depth   Shrink-swell	0.07	Poor Rock fragments Hard to reclaim (dense layer) Wetness depth Too clayey Too acid Hard to reclaim (rock fragments)	  0.00  0.03    0.07    0.60  0.88  0.92
85C: Onoville	   85             	Fair Droughty Too acid Organic matter content low Too clayey	0.18	  Fair   Wetness depth   Shrink-swell	0.07	Poor   Rock fragments   Hard to reclaim   (dense layer)   Wetness depth   Slope   Too clayey   Too acid   Hard to reclaim   (rock fragments)	0.00  0.03  0.07  0.37  0.60  0.88  0.92
85D: Onoville	   85             	Fair   Droughty   Too acid   Organic matter   content low   Too clayey	0.18	  Fair   Wetness depth   Slope   Shrink-swell	0.07	Poor   Slope   Rock fragments   Hard to reclaim   (dense layer)   Wetness depth   Too clayey   Too acid   Hard to reclaim   (rock fragments)	   0.00   0.00   0.03   0.07   0.60   0.88   0.92
86B: Eldred	   85             	Fair Organic matter content low Too acid Too clayey	0.50	Fair   Wetness depth     Shrink-swell	0.32	Poor Rock fragments Wetness depth Too clayey Hard to reclaim (rock fragments) Too acid	0.00

Table 15.—Source of Reclamation Material, Roadfill, and Topsoil—Continued

Map symbol and soil name	Pct. of map unit	reclamation mater		Potential source roadfill	of	Potential source topsoil	of
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
86C: Eldred	85	  Fair   Organic matter   content low	0.50	  Fair   Wetness depth	0.32	  Poor   Rock fragments	0.00
		Too acid Too clayey	0.54	Shrink-swell	0.87         	Wetness depth Slope Too clayey Hard to reclaim (rock fragments) Too acid	0.32  0.37  0.60  0.92 
86D: Eldred	95	  Fair	-	  Fair		  Poor	
Bidled	03	Organic matter content low	0.50	Wetness depth	0.32	Slope 	0.00
		Too acid Too clayey	0.54  0.92 	Slope   Shrink-swell 	0.50  0.87   	Rock fragments Wetness depth Too clayey Hard to reclaim (rock fragments)	!
87B:		 		 	   	Too acid	0.98
Shongo	80         	Fair Too acid Organic matter content low Droughty Water erosion Too clayey	0.32  0.50    0.51  0.90  0.92	Poor   Wetness depth   Shrink-swell 	  0.00  0.87   	Poor Wetness depth Hard to reclaim (rock fragments) Too clayey Rock fragments	0.00
87C:							
Shongo	80             	Fair Too acid Organic matter content low Droughty Water erosion Too clayey	0.32   0.50   0.51   0.90   0.92	Poor   Wetness depth   Shrink-swell 	0.00	Poor Wetness depth Hard to reclaim (rock fragments) Slope Too clayey Rock fragments	0.00   0.32   0.37   0.60   0.88
88A:	85	  Poor	İ	  Poor	į	  Poor	į
Ivory		Too clayey Too acid Organic matter content low Water erosion	0.00	Low strength   Wetness depth   Shrink-swell	0.00	Too clayey Wetness depth Rock fragments Too acid Hard to reclaim (rock fragments)	0.00   0.00   0.12     0.76   0.92
88B: Ivory	85	    Poor		    Poor		    Poor	   
-		Too clayey Too acid Organic matter content low	0.00	Low strength Wetness depth Shrink-swell	0.00	Too clayey Wetness depth Rock fragments	0.00
		Water erosion   	0.90			Too acid Hard to reclaim (rock fragments)	0.76

Table 15.—Source of Reclamation Material, Roadfill, and Topsoil—Continued

Map symbol and soil name	Pct.   Potential source of   of   reclamation material   map   unit			Potential source roadfill	Potential source topsoil	of	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
88C: Ivory	     85 	  Poor   Too clayey   Too acid	      0.00  0.20	  Poor   Low strength   Wetness depth	      0.00  0.00	  Poor   Too clayey   Wetness depth	      0.00  0.00
		Organic matter content low Water erosion	0.50    0.90   	Shrink-swell	0.87         	Rock fragments Slope Too acid Hard to reclaim (rock fragments)	0.12    0.37  0.76  0.92
88D:	0.5	    -		    -		     Doom	
Ivory	85           	Poor   Too clayey   Too acid   Organic matter   content low   Water erosion	0.00	Poor   Low strength   Wetness depth   Slope   Shrink-swell	0.00   0.00   0.50     0.87	Poor   Slope   Too clayey   Wetness depth     Rock fragments   Too acid   Hard to reclaim	0.00   0.00   0.00   0.12   0.76   0.92
00=						(rock fragments)	!
89B: Portville	   80       	Fair   Too acid   Droughty   Organic matter   content low   Water erosion	0.20	Poor   Wetness depth   Shrink-swell	  0.00  0.87 	Poor   Wetness depth   Rock fragments   Hard to reclaim   (rock fragments)   Too acid	0.00
89C:							
Portville	80           	Fair   Too acid   Droughty   Organic matter   content low   Water erosion	  0.20  0.39  0.50    0.90	Poor   Wetness depth   Shrink-swell 	  0.00  0.87   	Poor   Wetness depth   Rock fragments   Hard to reclaim   (rock fragments)   Slope   Too acid	  0.00  0.00  0.08    0.37  0.98
90A: Brinkerton	85	  Fair		  Poor		Poor	İ
	       	Organic matter content low Droughty Too acid Too clayey Water erosion	0.12    0.47  0.54  0.92  0.99	Wetness depth Shrink-swell	0.00    0.98 	Wetness depth Too clayey Too acid	0.00    0.53  0.98
90B:	İ	j 	İ	j 		 	İ
Brinkerton	85	  Fair   Organic matter   content low	0.12	  Poor   Wetness depth 	0.00	  Poor   Wetness depth 	0.00
	     	Droughty Too acid Too clayey Water erosion	0.47  0.54  0.92  0.99	Shrink-swell	0.98	Too clayey Too acid	0.53

Table 15.—Source of Reclamation Material, Roadfill, and Topsoil—Continued

Map symbol and soil name	Pct. of map unit	Potential source reclamation mater		Potential source roadfill	of	Potential source topsoil	of
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
91A: Palms	   85         	Poor   Wind erosion   Too acid	0.00	  Poor   Wetness depth   	    0.00     	Poor   Wetness depth   Organic matter   content high   Hard to reclaim   (rock fragments)	0.00
92: Carlisle	   85   	  Poor   Wind erosion	0.00	  Poor   Wetness depth 	    0.00 	Poor   Wetness depth   Organic matter   content high	0.00
93: Saprists, inundated-	   85         	Poor   Wind erosion   Too acid	0.00	  Poor   Wetness depth 	0.00	Poor   Wetness depth   Organic matter   content high   Hard to reclaim   (rock fragments)	0.00
94B: Frewsburg	   80       	Fair Too acid Organic matter content low Too clayey Droughty Depth to bedrock	  0.50  0.50    0.92  0.96  0.99	   Poor   Depth to bedrock   Wetness depth 	0.00	Poor Rock fragments Wetness depth Too clayey Too acid Depth to bedrock	  0.00  0.00    0.60  0.88  0.99
94C: Frewsburg	   80           	Fair Too acid Organic matter content low Too clayey Droughty Depth to bedrock	    0.50  0.50    0.92  0.96  0.99	   Poor   Depth to bedrock   Wetness depth	    0.00  0.00 	Poor Rock fragments Wetness depth Slope Too clayey Too acid Depth to bedrock	   0.00   0.00   0.37   0.60   0.88   0.99
95B: Mandy	   85         	Poor Droughty Too acid Organic matter content low Depth to bedrock	    0.00  0.50  0.50 	  Poor   Depth to bedrock	0.00	Poor Rock fragments Too acid Depth to bedrock	    0.00  0.76  0.79
95C: Mandy	   85   85     	Poor Droughty Too acid Organic matter content low Depth to bedrock	    0.00  0.50  0.50    0.79	   Poor   Depth to bedrock	0.00	Poor Rock fragments Slope Too acid Depth to bedrock	    0.00  0.37  0.76 

Table 15.—Source of Reclamation Material, Roadfill, and Topsoil—Continued

Map symbol and soil name	Pct. of map unit	reclamation material		Potential source roadfill	of	Potential source topsoil	of
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
95D: Mandy	   85     	  Poor   Droughty   Too acid   Organic matter   content low	  0.00  0.50  0.50	  Poor   Depth to bedrock   Slope 	    0.00  0.50 	   Poor   Slope   Rock fragments   Too acid	  0.00  0.00  0.76
		Depth to bedrock	0.79			Depth to bedrock	0.79
95E: Mandy	   85     	Poor   Droughty   Too acid   Organic matter   content low   Depth to bedrock	  0.00  0.50  0.50   	  Poor   Depth to bedrock   Slope 	  0.00  0.00 	   Poor   Slope   Rock fragments   Too acid     Depth to bedrock	  0.00  0.00  0.76 
95F: Mandy	85	  Poor   Droughty   Too acid   Organic matter	    0.00  0.50  0.50	  Poor   Depth to bedrock   Slope	      0.00  0.00	  Poor   Slope   Rock fragments   Too acid	    0.00  0.00  0.76
	İ	content low Depth to bedrock	0.79			Depth to bedrock	0.79
96B: Carrollton	80	  Fair   Organic matter   content low	      0.50	  Poor   Depth to bedrock	0.00	Poor Rock fragments	0.00
		Depth to bedrock   Too acid   Droughty	0.54  0.54  0.58	Wetness depth   	0.88   	Depth to bedrock   Wetness depth   Too acid	0.54
96C: Carrollton	   80     	  Fair   Organic matter   content low   Depth to bedrock   Too acid   Droughty	  0.50    0.54  0.54  0.58	  Poor   Depth to bedrock   	0.00	  Poor   Rock fragments   Slope   Depth to bedrock   Too acid	      0.00    0.37  0.54  0.98
96D:							
Carrollton	80	Fair   Organic matter   content low	0.50	Poor   Depth to bedrock	0.00	Poor   Slope	0.00
		Depth to bedrock   Too acid   Droughty	0.54  0.54  0.58	Slope	0.50	Rock fragments Depth to bedrock Too acid	0.00
96E: Carrollton	80	  Fair   Organic matter   content low	0.50	  Poor   Depth to bedrock	    0.00	  Poor   Slope	0.00
		Depth to bedrock Too acid Droughty	0.54  0.54  0.58	Slope	0.00   	Rock fragments Depth to bedrock Too acid	0.00
96F: Carrollton	80	  Fair   Organic matter   content low	0.50	  Poor   Depth to bedrock	0.00	  Poor   Slope	0.00
	   	Depth to bedrock Too acid Droughty	0.54 0.54 0.58	Slope	0.00	Rock fragments Depth to bedrock Too acid	0.00  0.54  0.98

Table 15.—Source of Reclamation Material, Roadfill, and Topsoil—Continued

Map symbol and soil name	Pct. of map unit	Potential source reclamation mater		Potential source roadfill	of	Potential source topsoil	of
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
97B: Kinzua	     85     	  Fair   Organic matter   content low   Too acid	    0.50    0.54	  Good   	         	  Poor   Hard to reclaim   (rock fragments)   Rock fragments   Too acid	0.00
97C: Kinzua	   85         	  Fair   Organic matter   content low   Too acid	    0.50    0.54	  Good 	           	   Poor   Hard to reclaim   (rock fragments)   Rock fragments   Slope   Too acid	  0.00  0.00  0.37  0.98
97D: Kinzua	   85   85       	Fair   Organic matter   content low   Too acid	    0.50    0.54	   Fair   Slope 	    0.50     	Poor   Slope   Hard to reclaim   (rock fragments)   Rock fragments   Too acid	0.00
97E: Kinzua	   85         	   Fair   Organic matter   content low   Too acid	  0.50    0.54	  Poor   Slope 	0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments Too acid	0.00
97F: Kinzua	   85   85       	  Fair   Organic matter   content low   Too acid	    0.50    0.54	  Poor   Slope 	    0.00     	   Poor   Slope   Hard to reclaim   (rock fragments)   Rock fragments   Too acid	0.00
98D: Kinzua	   85           	  Fair   Organic matter   content low   Too acid	    0.50    0.54 	  Fair   Slope 	    0.50     	   Poor   Slope   Hard to reclaim   (rock fragments)   Rock fragments   Too acid	0.00
98E: Kinzua	   85           	   Organic matter   content low   Too acid	      0.50    0.54	  Poor   Slope 	    0.00       	Poor   Slope   Hard to reclaim   (rock fragments)   Rock fragments   Too acid	0.00

Table 15.—Source of Reclamation Material, Roadfill, and Topsoil—Continued

Map symbol and soil name	Pct. of map unit	Potential source reclamation mater	Potential source roadfill	of	Potential source topsoil	of	
	 	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
99B: Buchanan	     85 	  Fair   Organic matter   content low	      0.12	  Fair   Wetness depth	      0.38	Poor Hard to reclaim (rock fragments)	!
	   	Too acid Droughty	0.54	Shrink-swell   	0.97   	Rock fragments Wetness depth Too acid	0.12  0.38  0.98
99C: Buchanan	     85	    Fair   Organic matter	      0.12	    Fair   Wetness depth	      0.38	    Poor   Hard to reclaim	      0.00
	     	content low   Too acid   Droughty	0.12	Shrink-swell	0.30	(rock fragments) Rock fragments Slope Wetness depth	!
99D:	     				     	Wethess depth   Too acid 	0.98
Buchanan	85   	Fair   Organic matter   content low	0.12	Fair   Wetness depth	  0.38 	Poor   Slope	0.00
	   	Too acid Droughty	0.54	Slope     Shrink-swell	0.50    0.97	Hard to reclaim (rock fragments) Rock fragments	0.12
100:	     	 		   		Wetness depth   Too acid 	0.38  0.98 
Udorthents	   85 	  Not rated 		  Not rated 		  Not rated 	
101: Udorthents, refuse substratum	     90 	    Not rated		    Not rated	     	  Not rated	     
102C: Mandy	     40 	    Poor   Droughty   Organic matter	    0.00  0.50	    Poor   Depth to bedrock	      0.00	  Poor   Rock fragments   Too acid	      0.00  0.76
	   	content low Too acid Depth to bedrock	  0.50  0.79		     	   Depth to bedrock   Slope	  0.79  0.96
Rock outcrop	35	  Not rated 		  Not rated 		Not rated	
103C: Knapp Creek	     40 	    Fair   Too acid 	0.05	  -  Fair   Cobble content 	      0.85	  Poor   Hard to reclaim   (rock fragments)	      0.00
	     	Organic matter content low Droughty	0.50	Depth to bedrock	0.99     	Rock fragments Too acid Slope	0.00    0.59  0.96
Rock outcrop	35	  Not rated		  Not rated		  Not rated	

Table 15.—Source of Reclamation Material, Roadfill, and Topsoil—Continued

Map symbol and soil name	Pct. of map unit	Potential source reclamation mater		Potential source roadfill	of	Potential source topsoil	of
	   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
104B: Flatiron	   80   	Fair Too acid Organic matter content low	  0.08  0.50	Good	       	Fair Rock fragments Too acid	0.12
104C: Flatiron	   80   	Fair Too acid Organic matter content low	0.08	Good	         	   Fair   Rock fragments   Slope     Too acid	  0.12  0.37    0.50
104D: Flatiron	     80   	Fair Too acid Organic matter content low	    0.08  0.50	  Fair   Slope	      0.50   	Poor   Slope   Rock fragments     Too acid	      0.00  0.12    0.50
104E: Flatiron	   80     	   Fair   Too acid   Organic matter   content low	0.08	   Poor   Slope 	      0.00   	   Poor   Slope   Rock fragments     Too acid	    0.00  0.12    0.50
108D: Hartleton	   85         	Fair Organic matter content low Too acid Droughty	  0.12    0.54    0.63	Fair Slope Depth to bedrock	  0.50    0.99 	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00
108E: Hartleton	   85         	Fair Organic matter content low Too acid Droughty	0.12	   Poor   Slope     Depth to bedrock	0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments Too acid	0.00
108F: Hartleton	     85 	  Fair   Organic matter   content low	0.12	  Poor   Slope	      0.00	  Poor   Slope	0.00
		Too acid  Droughty	0.54	Depth to bedrock	0.99       	Hard to reclaim (rock fragments) Rock fragments Too acid	0.00    0.00  0.98
131: Lamson	   85       	Fair Organic matter content low Too acid Water erosion	  0.12    0.99  0.99	Poor Wetness depth	    0.00   	Poor Wetness depth	0.00

Table 15.—Source of Reclamation Material, Roadfill, and Topsoil—Continued

Map symbol and soil name	Pct. of map unit	Potential source reclamation mater		Potential source roadfill	of	Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
132B:							
Wiscoy	80	Poor	j	Poor	j	Poor	j
		Droughty 	0.00	Wetness depth 	0.00	Hard to reclaim (dense layer)	0.00
		Water erosion   Organic matter   content low   Too acid	0.06	Low strength   	0.00	Wetness depth   Rock fragments   	0.00
1000							
132C: Wiscoy	80	  Poor		  Poor		  Poor	
NIBCOY		Droughty 	0.00	Wetness depth	0.00	Hard to reclaim (dense layer)	0.00
	İ	Water erosion	0.06	Low strength	0.00	Wetness depth	0.00
		Organic matter content low	0.50			Rock fragments	0.00
		Too acid	0.97			Slope 	0.37
135C:					ļ		
Hudson	85	Poor		Poor		Poor	
		Too clayey Organic matter content low	0.00	Low strength Wetness depth	0.00	Too clayey   Wetness depth 	0.00
		Water erosion   Too acid	0.68	Shrink-swell	0.87	Slope	0.37
135D:							
Hudson	85	Poor		Poor		Poor	
	İ	Too clayey	0.00	Low strength	0.00	Slope	0.00
		Organic matter content low	0.50	Wetness depth	0.24	Too clayey	0.00
		Water erosion   Too acid	0.68	Slope   Shrink-swell	0.50	Wetness depth 	0.24
135E:							
Hudson	85	Poor	İ	Poor	į	Poor	j
		Too clayey Organic matter	0.00	Slope Low strength	0.00	Slope   Too clayey	0.00
		content low Water erosion Too acid	0.68	   Wetness depth   Shrink-swell	0.24	   Wetness depth 	0.24
140D: Dunkirk	85	  Fair		  Fair		  Poor	1
<del></del>		Water erosion Too acid	0.68	Slope Low strength	0.50	Slope   Too clayey	0.00
		Too clayey	0.92				
140E:		 					1
Dunkirk	85	Fair	į	Poor		Poor	
		Water erosion	0.68	Slope	0.00	Slope	0.00
		Too acid Too clayey	0.84	Low strength	0.78	Too clayey	0.72
	1	100 Clayey	0.54			 	-

Table 15.—Source of Reclamation Material, Roadfill, and Topsoil—Continued

Map symbol and soil name	Pct. of map unit	Potential source reclamation mater		Potential source roadfill	of	Potential source topsoil	of
	 	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
185C:							
Onoville	85	Fair		Fair		Poor	
		Droughty	0.18	Wetness depth	0.07	Rock fragments	0.00
		Too acid	0.32	Shrink-swell	0.87	Hard to reclaim	0.03
			0 50			(dense layer)	0.07
		Organic matter content low	0.50	 	 	Wetness depth	0.07
		Too clayey	0.92	 	 	   Slope	0.37
	l	100 Clayey	0.52	i i		Too clayey	0.60
	l	l I	1	i i		Too acid	0.88
	i		i	İ		Hard to reclaim	0.92
						(rock fragments)	
185D:	 						
Onoville	85	Fair	ļ	Fair	ļ	Poor	ļ
		Droughty	0.18	Wetness depth	0.07	Slope	0.00
		Too acid	0.32	Slope	0.50	Rock fragments	0.00
	ļ	Organic matter	0.50	Shrink-swell	0.87	Hard to reclaim	0.03
		content low				(dense layer)	
		Too clayey	0.92			Wetness depth	0.07
						Too clayey	0.60
		 			l	Too acid Hard to reclaim	0.88
		 		 	l I	hard to reclaim   (rock fragments)	0.92
	l	 		i i		(TOCK Tragments)	
L87B:	i		i				
Shongo	80	Fair	İ	Poor	İ	Poor	i
		Too acid	0.32	Wetness depth	0.00	Wetness depth	0.00
		Organic matter	0.50	Shrink-swell	0.87	Hard to reclaim	0.32
		content low				(rock fragments)	
		Droughty	0.51			Too clayey	0.60
	ļ	Water erosion	0.90	ļ		Rock fragments	0.88
		Too clayey	0.92			 	
187C:	l	 		 	 	 	
Shongo	80	Fair	i	Poor	i	Poor	
		Too acid	0.32	Wetness depth	0.00	Wetness depth	0.00
	İ	Organic matter	0.50	Shrink-swell	0.87	Hard to reclaim	0.32
	İ	content low	İ	İ	İ	(rock fragments)	İ
		Droughty	0.51			Slope	0.37
		Water erosion	0.90			Too clayey	0.60
	!	Too clayey	0.92			Rock fragments	0.88
188B:			}		 		
Cavode	85	Poor	į	Poor	į	Poor	j
	İ	Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Too acid	0.12	Wetness depth	0.00	Hard to reclaim (rock fragments)	0.00
	i	Organic matter	0.50	   Shrink-swell	0.87	Wetness depth	0.00
	i	content low					
	İ	Water erosion	0.90	İ	İ	Rock fragments	0.12
						Too acid	0.59
188C:			i				
Cavode	85	Poor	ļ	Poor	ļ	Poor	ļ
	ļ	Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Too acid	0.12	Wetness depth	0.00	Hard to reclaim	0.00
						(rock fragments)	:
		Organic matter	0.50	Shrink-swell	0.87	Wetness depth	0.00
		content low	0.00			Pook from	0 12
		Water erosion	0.90	 		Rock fragments	0.12
	!		1	1	 	Slope   Too acid	0.59

Table 15.—Source of Reclamation Material, Roadfill, and Topsoil—Continued

Map symbol and soil name	Pct. of map unit	Potential source reclamation mater		Potential source roadfill	of	Potential source topsoil	of
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
188D:				 			
Cavode	85	Poor	İ	Poor	İ	Poor	İ
		Too clayey	0.00	Low strength	0.00	Slope	0.00
		Too acid	0.12	Wetness depth	0.00	Too clayey	0.00
	ļ	Organic matter	0.50	Slope	0.50	Hard to reclaim	0.00
	ļ	content low				(rock fragments)	
		Water erosion	0.90	Shrink-swell	0.87	Wetness depth	0.00
				 		Rock fragments   Too acid	0.12
	İ		ļ		į		į
189B: Portville	80	  Fair		  Poor		  Poor	
101011110		Too acid	0.20	Wetness depth	0.00	Wetness depth	0.00
	i	Droughty	0.39	Shrink-swell	0.87	Rock fragments	0.00
	İ	Organic matter	0.50	į	İ	Hard to reclaim	0.08
	ĺ	content low	İ	ĺ	İ	(rock fragments)	İ
		Water erosion	0.90			Too acid	0.98
189C:	 						
Portville	80	Fair	İ	Poor	į	Poor	İ
	ļ	Too acid	0.20	Wetness depth	0.00	Wetness depth	0.00
	ļ	Droughty	0.39	Shrink-swell	0.87	Rock fragments	0.00
	-	Organic matter content low	0.50	 		Hard to reclaim (rock fragments)	0.08
		Water erosion	0.90	 		Slope	0.37
						Too acid	0.98
195C:							
Mandy	85	Poor		Poor		Poor	
2	İ	Droughty	0.00	Depth to bedrock	0.00	Rock fragments	0.00
	İ	Too acid	0.50	<u> </u>	į	Too acid	0.76
		Organic matter	0.50	ļ		Depth to bedrock	0.79
		content low					
	 	Depth to bedrock	0.79			Slope 	0.96
195D:	ļ		İ		İ		į
Mandy	85			Poor		Poor	
		Droughty Too acid	0.00	Depth to bedrock	0.50	Slope   Rock fragments	0.00
		Organic matter	0.50	Slope	0.30	Too acid	0.76
	i	content low				100 4014	
	ļ	Depth to bedrock	0.79		į	Depth to bedrock	0.79
195E:	l i					 	
Mandy	85	Poor		Poor	i	Poor	i
	İ	Droughty	0.00	Depth to bedrock	0.00	Slope	0.00
	ļ	Too acid	0.50	Slope	0.00	Rock fragments	0.00
	ļ	Organic matter	0.50			Too acid	0.76
	 	content low Depth to bedrock	0.79			Depth to bedrock	0.79
	ļ	•			İ	•	
199C: Buchanan	85	  Fair		  Fair		Poor	
Daonanan	05	organic matter	0.12	Wetness depth	0.38	Hard to reclaim	0.00
	İ	content low				(rock fragments)	
	İ	Too acid	0.54	Shrink-swell	0.97	Rock fragments	0.12
		Droughty	0.72			Slope	0.37
	I		1		1	Wetness depth	0.38
	!		!		!	Too acid	0.98

Table 15.—Source of Reclamation Material, Roadfill, and Topsoil—Continued

Map symbol and soil name	Pct. of map unit	Potential source reclamation mater		Potential source roadfill	of	Potential source topsoil	of
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
199D: Buchanan	     85 	  Fair   Organic matter	0.12	  Fair   Wetness depth	      0.38	  Poor   Slope	0.00
	   	content low Too acid	0.54	   Slope 	0.50	Hard to reclaim (rock fragments)	0.00
	   	Droughty	0.72	Shrink-swell	0.97	Rock fragments Wetness depth Too acid	0.12  0.38  0.98
289B:	 						
Ceres	85       	Fair   Organic matter   content low   Too acid   Droughty	  0.12    0.50  0.86	Fair   Depth to bedrock   	  0.12   	Poor   Hard to reclaim   (rock fragments)   Rock fragments   Too acid	  0.00    0.00  0.76
289C:							
Ceres	85       	Fair   Organic matter   content low   Too acid   Droughty	  0.12    0.50  0.86	Fair   Depth to bedrock   	  0.12   	Poor   Hard to reclaim   (rock fragments)   Rock fragments   Slope	0.00
	 	<u> </u>				Too acid	0.76
289D: Ceres	   85 	  Fair   Organic matter   content low	    0.12	  Fair   Depth to bedrock	    0.12	  Poor   Slope	    0.00
	   	Too acid	0.50	   Slope 	0.50	Hard to reclaim (rock fragments)	0.00
	 	Droughty 	0.86			Rock fragments Too acid	0.00
289E:							
Ceres	85   	Fair   Organic matter   content low	0.12	Poor   Slope 	0.00	Poor   Slope 	0.00
	<u> </u> 	Too acid	0.50	Depth to bedrock	0.12	Hard to reclaim (rock fragments)	0.00
	   	Droughty   	0.86	 	   	Rock fragments Too acid	0.00
289F: Ceres	     85 	  Fair   Organic matter	0.12	  Poor   Slope	0.00	  Poor   Slope	0.00
	 	content low Too acid	0.50	Depth to bedrock	0.12	Hard to reclaim	0.00
	     	   Droughty   	  0.86 	 	     	(rock fragments)   Rock fragments   Too acid	  0.00  0.76
400: Wakeville	80	  Fair		Poor		Poor	
	 	Water erosion	0.68	Wetness depth	0.00	Hard to reclaim (rock fragments)	0.00

Table 15.—Source of Reclamation Material, Roadfill, and Topsoil—Continued

Map symbol and soil name	Pct. of map	Potential source reclamation mater		Potential source roadfill	of	Potential source topsoil	of
	unit   	Rating class and limiting features	Value	Rating class and	Value	Rating class and limiting features	Value
496B: Gilpin	85	    Fair   Too acid	0.50	    Poor   Depth to bedrock		    Poor   Rock fragments	0.00
		Organic matter content low Droughty	0.50    0.57	Wetness depth   	0.88	Too acid Too clayey	0.59    0.60
		Depth to bedrock Too clayey	0.90			Wetness depth   Depth to bedrock	0.88
496C: Gilpin	85	  Fair		  Poor		  Poor	
		Too acid Organic matter content low	0.50	Depth to bedrock	0.00	Rock fragments Slope	0.00
		Droughty Depth to bedrock Too clayey	0.57  0.90  0.92		   	Too acid Too clayey Depth to bedrock	0.59
496D: Gilpin	     85	    Fair		    Poor		    Poor	   
		Too acid Organic matter content low	0.50	Depth to bedrock   Slope 	0.00	Slope   Rock fragments 	0.00
		Droughty Depth to bedrock Too clayey	0.57  0.90  0.92	 		Too acid Too clayey Depth to bedrock	0.59  0.60  0.90
496E:     Gilpin	     85	    Fair		    Poor	   	    Poor	   
		Too acid Organic matter content low	0.50	Depth to bedrock   Slope	0.00	Slope   Rock fragments	0.00
		Droughty Depth to bedrock Too clayey	0.57  0.90  0.92			Too acid Too clayey Depth to bedrock	0.59
496F:	     85	    Fair	   	    Poor		    Poor	
_		Too acid Organic matter content low	0.50	Depth to bedrock	0.00	Slope Rock fragments	0.00
		Droughty Depth to bedrock Too clayey	0.57			Too acid Too clayey Depth to bedrock	0.59
497D:		_ <u></u>	İ				
Rayne	80   	Fair   Organic matter   content low	0.50	Fair   Slope 	0.50	Poor   Slope 	0.00
		Too acid	0.54	 		Rock fragments Hard to reclaim (rock fragments)	0.00
						Too acid	0.98
497E: Rayne	   80 	  Fair   Organic matter   content low	0.50	  Poor   Slope 	0.00	  Poor   Slope 	0.00
		Too acid	0.54			Rock fragments Hard to reclaim	0.00

Table 15.—Source of Reclamation Material, Roadfill, and Topsoil—Continued

Map symbol and soil name	Pct. of map	of reclamation material		Potential source of roadfill		Potential source of topsoil	
	unit	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
497F:	   						
Rayne	80   	Fair   Organic matter   content low	0.50	Poor   Slope 	0.00	Poor   Slope 	0.00
	   	Too acid	0.54	 		Rock fragments Hard to reclaim (rock fragments)	!
498E:	   	 		 		Too acid   	0.98
Rayne	80   	Fair   Organic matter   content low	0.50	Poor   Slope 	0.00	Poor   Slope 	0.00
	     	Too acid	0.54			Rock fragments Hard to reclaim (rock fragments) Too acid	0.00
800: Holderton	       80	      Fair		      Poor		Poor	
	   	Organic matter content low Water erosion	0.50	Wetness depth   	0.00	Wetness depth     Hard to reclaim	0.00
PG:	   		<u> </u>	 		(rock fragments)	<u> </u> 
Pits, gravel	   85 	  Not rated 		  Not rated 		Not rated	
Ur: Urban land	     85 	    Not rated 	     	    Not rated 		    Not rated 	
W: Water	    100	    Not rated	     	    Not rated		    Not rated	     

## Table 16.-Dwellings and Small Commercial Buildings

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	basements	ut	Dwellings with basements		Small commercia   buildings	1
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1: Udifluvents	     40 	  Very limited   Flooding	      1.00	Very limited Flooding Depth to saturated zone	    1.00  0.61	  Very limited   Flooding	1.00
Fluvaquents	   35     	  Very limited   Flooding   Depth to   saturated zone	  1.00  1.00	  Very limited   Flooding   Depth to   saturated zone	  1.00  1.00 	  Very limited   Flooding   Depth to   saturated zone	  1.00  1.00
2: Hamlin	   85     	  Very limited   Flooding 	    1.00 	   Very limited   Flooding   Depth to   saturated zone	    1.00  0.35	  Very limited   Flooding	1.00
3: Tioga	   85     	  Very limited   Flooding 	      1.00 	  Very limited   Flooding   Depth to   saturated zone	    1.00  0.35	  Very limited   Flooding 	1.00
4: Teel	   85     	  Very limited   Flooding   Depth to   saturated zone	    1.00  0.77	   Very limited   Flooding   Depth to   saturated zone	  1.00  1.00	   Very limited   Flooding   Depth to   saturated zone	1.00
5: Wayland	   85     	  Very limited   Flooding   Depth to   saturated zone	    1.00  1.00	Very limited   Flooding   Depth to   saturated zone	  1.00  1.00	Very limited   Flooding   Depth to   saturated zone	1.00
6A: Wyalusing	   85     	Very limited   Flooding   Depth to   saturated zone	  1.00  1.00	Very limited Flooding Depth to saturated zone	  1.00  1.00	Very limited Flooding Depth to saturated zone	  1.00  1.00
7A: Philo	   85     	Very limited   Flooding   Depth to   saturated zone	    1.00  0.77 	Very limited Flooding Depth to saturated zone	  1.00  1.00	Very limited Flooding Depth to saturated zone	  1.00  0.77
8: Middlebury	   85     	  Very limited   Flooding   Depth to   saturated zone	    1.00  0.77 	Very limited Flooding Depth to saturated zone	  1.00  1.00	Very limited Flooding Depth to saturated zone	  1.00  0.77

Table 16.-Dwellings and Small Commercial Buildings-Continued

Map symbol and soil name	Pct. of map unit	Dwellings witho basements	out	Dwellings with basements		Small commercia buildings	1
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Valu
9: Pawling	   85   	   Very limited   Flooding   Depth to   saturated zone	1.00	  Very limited   Flooding   Depth to   saturated zone	  1.00  1.00	  Very limited   Flooding   Depth to   saturated zone	1.00
10: Atkins	     85   	  Very limited   Flooding   Depth to   saturated zone	1.00	  Very limited   Flooding   Depth to   saturated zone	    1.00  1.00	  Very limited   Flooding   Depth to   saturated zone	1.00
11B: Ischua	   85         	Somewhat limited Depth to saturated zone Depth to hard bedrock	  0.77    0.64	Very limited   Depth to   saturated zone   Depth to hard   bedrock	1.00	Somewhat limited   Depth to   saturated zone   Depth to hard   bedrock   Slope	0.77
11C: Ischua	   85         	Somewhat limited Depth to saturated zone Depth to hard bedrock Slope	  0.77    0.64    0.63	Very limited Depth to saturated zone Depth to hard bedrock Slope	  1.00    1.00    0.63	Very limited Slope Depth to saturated zone Depth to hard bedrock	  1.00    0.77    0.64
11D: Ischua	     85       	Very limited Slope Depth to saturated zone Depth to hard bedrock	    1.00  0.77    0.64	   Very limited   Slope   Depth to   saturated zone   Depth to hard   bedrock	    1.00  1.00    1.00	   Very limited   Slope   Depth to   saturated zone   Depth to hard   bedrock	  1.00  0.77    0.64
11E: Ischua	     85       	Very limited Slope Depth to saturated zone Depth to hard bedrock	    1.00  0.77    0.64	   Very limited   Slope   Depth to   saturated zone   Depth to hard   bedrock	    1.00  1.00    1.00	  Very limited   Slope   Depth to   saturated zone   Depth to hard   bedrock	  1.00  0.77    0.64
11F: Ischua	     85       	Very limited   Slope   Depth to   saturated zone   Depth to hard   bedrock	    1.00  0.77    0.64	   Very limited   Slope   Depth to   saturated zone   Depth to hard   bedrock	    1.00  1.00    1.00	   Very limited   Slope   Depth to   saturated zone   Depth to hard   bedrock	  1.00  0.77    0.64
12B: Franklinville	   85   	   Not limited  -		  Somewhat limited   Depth to   saturated zone	0.35	  Somewhat limited   Slope 	0.50
12C: Franklinville	   85   	  Somewhat limited   Slope	0.63	  Somewhat limited   Slope   Depth to   saturated zone	    0.63  0.35	  Very limited   Slope 	1.00

Table 16.-Dwellings and Small Commercial Buildings-Continued

Map symbol and soil name	Pct. of map unit	Dwellings witho basements	out	Dwellings with basements		   Small commercia   buildings 	1
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
12D: Franklinville	85	  Very limited   Slope	1.00	    Very limited   Slope	1.00	    Very limited   Slope	1.00
12E: Franklinville	85	  Very limited   Slope	1.00	  Very limited   Slope	1.00	  Very limited   Slope	1.00
14B: Hornellsville	   85     	Very limited  Depth to saturated zone Shrink-swell	1.00	Very limited   Depth to   saturated zone   Shrink-swell   Depth to soft   bedrock	  1.00    0.50  0.15	Very limited Depth to saturated zone Slope Shrink-swell	  1.00    0.50  0.50
14C: Hornellsville	   85       	Very limited Depth to saturated zone Slope Shrink-swell	1.00	Very limited   Depth to   saturated zone   Slope   Shrink-swell   Depth to soft   bedrock	  1.00    0.63    0.50  0.15	Very limited   Slope	1.00
15B: Willdin	     85   	  Somewhat limited   Depth to   saturated zone	0.95	 	      1.00	  Somewhat limited   Depth to   saturated zone   Slope	0.95
15C: Willdin	   85     	   Somewhat limited   Depth to   saturated zone   Slope	0.95	  Very limited   Depth to   saturated zone   Slope	    1.00    0.63	  Very limited   Slope     Depth to   saturated zone	1.00
15D: Willdin	     85   	  Very limited   Slope   Depth to   saturated zone	  1.00  0.95	  Very limited   Slope   Depth to   saturated zone	    1.00  1.00	  Very limited   Slope   Depth to   saturated zone	1.00
16A: Almond	80	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	1.00
16B: Almond	80	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	    1.00 	  Very limited   Depth to   saturated zone   Slope	1.00
16C: Almond	   80     	   Very limited   Depth to   saturated zone   Slope	1.00	  Very limited   Depth to   saturated zone   Slope	    1.00    0.63	  Very limited   Slope   Depth to   saturated zone	1.00

Table 16.—Dwellings and Small Commercial Buildings—Continued

Map symbol and soil name	Pct. of map unit	basements	ut	Dwellings with basements		   Small commercia   buildings 	1
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
17B: Salamanca	     80   	Somewhat limited   Depth to   saturated zone	      0.77 	  Very limited   Depth to   saturated zone	      1.00 	Somewhat limited Depth to saturated zone Slope	0.77
17C: Salamanca	     80     	  Somewhat limited   Depth to   saturated zone   Slope	    0.77    0.63	  Very limited   Depth to   saturated zone   Slope	    1.00    0.63	   Very limited   Slope     Depth to   saturated zone	1.00
17D: Salamanca	   80   	  Very limited   Slope   Depth to   saturated zone	    1.00  0.77	  Very limited   Slope   Depth to   saturated zone	    1.00  1.00	   Very limited   Slope   Depth to   saturated zone	1.00
17E: Salamanca	   80   	Very limited Slope Depth to saturated zone	  1.00  0.77	  Very limited   Slope   Depth to   saturated zone	    1.00  1.00	  Very limited   Slope   Depth to   saturated zone	1.00
18A: Pope	85	  Very limited   Flooding	1.00	  Very limited   Flooding	1.00	  Very limited   Flooding	1.00
19A: Olean	     85   	  Somewhat limited   Depth to   saturated zone   Shrink-swell	    0.77    0.50	  Very limited   Depth to   saturated zone	1.00	   Somewhat limited   Depth to   saturated zone   Shrink-swell	0.77
19B: Olean	   85     	  Somewhat limited   Depth to   saturated zone   Shrink-swell	0.77	  Very limited   Depth to   saturated zone	    1.00 	  Somewhat limited   Depth to   saturated zone   Shrink-swell	0.77
20A: Unadilla	85	  Not limited		  Not limited		  Not limited	
20B: Unadilla	85	  Not limited		  Not limited		  Not limited	
20C: Unadilla	     85 	  Somewhat limited   Slope	0.63	  Somewhat limited   Slope	      0.63	  Very limited   Slope	1.00
20D: Unadilla	85	  Very limited   Slope	1.00	  Very limited   Slope	1.00	  Very limited   Slope	1.00
22A: Allard	     85	    Not limited 		    Not limited 		    Not limited 	

Table 16.—Dwellings and Small Commercial Buildings—Continued

Map symbol and soil name	Pct. of map	Dwellings witho basements	ut	Dwellings with basements		Small commercia   buildings	1
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
22B: Allard	     85	    Not limited 	     	    Not limited 		    Not limited 	
25A: Chenango	   85 	  Not limited 	   	  Not limited 		  Not limited 	j   
25B: Chenango	   85 	  Not limited 		  Not limited 	   	  Somewhat limited   Slope	0.50
25C: Chenango	     85 	  Somewhat limited   Slope 	      0.63	  Somewhat limited   Slope	0.63	  Very limited   Slope	1.00
25D: Chenango	   85 	  Very limited   Slope	    1.00	  Very limited   Slope	1.00	  Very limited   Slope	1.00
25E: Chenango	     80 	  Very limited   Slope	      1.00	  Very limited   Slope	1.00	  Very limited   Slope	1.00
25F: Chenango	   80 	  Very limited   Slope	    1.00	  Very limited   Slope	1.00	  Very limited   Slope	1.00
26A: Chenango, fan	   80   	  Very limited   Flooding	    1.00 	Very limited Flooding Depth to saturated zone	    1.00  0.35	   Very limited   Flooding	1.00
26B: Chenango, fan	     80   	  Very limited   Flooding	    1.00 	   Very limited   Flooding   Depth to   saturated zone	    1.00  0.35	  Very limited   Flooding   Slope	1.00
27A: Castile	     85   	  Somewhat limited   Depth to   saturated zone	      0.77 	  Very limited   Depth to   saturated zone	      1.00	  Somewhat limited   Depth to   saturated zone	0.77
27B: Castile	   85   	  Somewhat limited   Depth to   saturated zone	    0.77 	   Very limited   Depth to   saturated zone	    1.00 	   Somewhat limited   Depth to   saturated zone   Slope	0.77
28A: Scio	     85   	  Somewhat limited   Depth to   saturated zone	      0.77	   Very limited   Depth to   saturated zone	      1.00	  Somewhat limited   Depth to   saturated zone	0.77
29A: Chenango	     85	    Not limited 	     	    Not limited 		    Not limited 	
29B: Chenango	   85 	  Not limited	     	  Not limited	   	  Somewhat limited   Slope	0.50

Table 16.—Dwellings and Small Commercial Buildings—Continued

Map symbol and soil name	Pct. of map unit	basements	ut	Dwellings with basements		Small commercia buildings	1
	.	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
29C: Chenango	85	  Somewhat limited   Slope	      0.63	  Somewhat limited   Slope	0.63	  Very limited   Slope	1.00
29D: Chenango	85	  Very limited   Slope	1.00	  Very limited   Slope	1.00	  Very limited   Slope	1.00
29E: Chenango	85	  Very limited   Slope	1.00	  Very limited   Slope	1.00	  Very limited   Slope	1.00
31B: Collamer	85	  Somewhat limited   Depth to   saturated zone	    0.77 	  Very limited   Depth to   saturated zone	    1.00 	  Somewhat limited   Depth to   saturated zone	0.77
31C: Collamer	   85     	Somewhat limited   Depth to   saturated zone   Slope	    0.77    0.63	  Very limited   Depth to   saturated zone   Slope	  1.00    0.63	   Very limited   Slope     Depth to   saturated zone	1.00
32A: Churchville	   85 	  Very limited   Depth to   saturated zone   Shrink-swell	    1.00    0.50	  Very limited   Depth to   saturated zone	    1.00 	  Very limited   Depth to   saturated zone   Shrink-swell	1.00
32B: Churchville	   85   	   Very limited   Depth to   saturated zone   Shrink-swell	    1.00    0.50	  Very limited   Depth to   saturated zone	    1.00 	Very limited   Depth to   saturated zone   Shrink-swell	1.00
33A: Wallington	85	  Very limited   Depth to   saturated zone	      1.00	  Very limited   Depth to   saturated zone	    1.00	  Very limited   Depth to   saturated zone	1.00
34: Getzville	80	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	    1.00 	  Very limited   Depth to   saturated zone	1.00
35A: Rhinebeck	80	  Very limited   Depth to   saturated zone   Shrink-swell	1.00	  Very limited   Depth to   saturated zone	    1.00 	   Very limited   Depth to   saturated zone   Shrink-swell	1.00
35B: Rhinebeck	80	  Very limited   Depth to   saturated zone   Shrink-swell	    1.00    0.50	  Very limited   Depth to   saturated zone	    1.00 	  Very limited   Depth to   saturated zone   Shrink-swell	1.00

Table 16.—Dwellings and Small Commercial Buildings—Continued

Map symbol and soil name	Pct. of map	basements	ut	Dwellings with basements		Small commercia   buildings	1
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
35C: Rhinebeck	   80     	  Very limited   Depth to   saturated zone   Slope	    1.00    0.63	  Very limited   Depth to   saturated zone   Slope	  1.00    0.63	  Very limited   Slope   Depth to   saturated zone	  1.00    1.00
	į į	Shrink-swell	0.50	 	İ	Shrink-swell	0.50
36: Canadice	   75   	  Very limited   Depth to   saturated zone   Shrink-swell	1.00	  Very limited   Depth to   saturated zone   Shrink-swell	  1.00    0.50	  Very limited   Depth to   saturated zone   Shrink-swell	1.00
37A: Tonawanda	     80 	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	    1.00	  Very limited   Depth to   saturated zone	1.00
37B: Tonawanda	     80 	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	    1.00 	  Very limited   Depth to   saturated zone	1.00
38A: Niagara	   85   	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	    1.00 	  Very limited   Depth to   saturated zone	1.00
38B: Niagara	   85 	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	1.00
39A: Halsey	   85     	  Very limited   Ponding   Depth to   saturated zone	1.00	  Very limited   Ponding   Depth to   saturated zone	  1.00  1.00	   Very limited   Ponding   Depth to   saturated zone	1.00
40A: Williamson	   85   	  Somewhat limited   Depth to   saturated zone	    0.90 	  Very limited   Depth to   saturated zone	    1.00 	  Somewhat limited   Depth to   saturated zone	    0.90 
40B: Williamson	   85   	Somewhat limited   Depth to   saturated zone	    0.90 	Very limited   Depth to   saturated zone	    1.00 	Somewhat limited   Depth to   saturated zone	0.90
40C: Williamson	   85     	Somewhat limited   Depth to   saturated zone   Slope	    0.90    0.63	Very limited   Depth to   saturated zone   Slope	    1.00    0.63	Very limited   Slope   Depth to   saturated zone	1.00
41A: Barcelona	     85   	   Very limited   Depth to   saturated zone	      1.00	   Very limited   Depth to   saturated zone	      1.00	Very limited   Depth to   saturated zone	1.00

Table 16.-Dwellings and Small Commercial Buildings-Continued

Map symbol and soil name	Pct. of map unit	Dwellings witho basements	ut	Dwellings with basements		Small commercia   buildings 	1
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
41B: Barcelona	     85   	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	      1.00	  Very limited   Depth to   saturated zone	1.00
42A: Elnora	   80 	Somewhat limited   Depth to   saturated zone	0.77	  Very limited   Depth to   saturated zone	    1.00	  Somewhat limited   Depth to   saturated zone	0.77
42B: Elnora	   80   	   Somewhat limited   Depth to   saturated zone	0.77	  Very limited   Depth to   saturated zone	    1.00 	  Somewhat limited   Depth to   saturated zone   Slope	0.77
43: Canandaigua, silt loam	       80   	  Very limited   Ponding   Depth to   saturated zone	1.00	  Very limited   Ponding   Depth to   saturated zone	      1.00  1.00	  Very limited   Ponding   Depth to   saturated zone	1.00
44: Canandaigua, mucky silt loam	     85     	   Very limited   Ponding   Depth to   saturated zone	1.00	  Very limited   Ponding   Depth to   saturated zone	    1.00  1.00	  Very limited   Ponding   Depth to   saturated zone	1.00
45: Canandaigua, acid substratum	     80   	   Very limited   Ponding   Depth to   saturated zone	1.00	  Very limited   Ponding   Depth to   saturated zone	    1.00  1.00	  Very limited   Ponding   Depth to   saturated zone	1.00
46: Swormville	     85 	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	      1.00	  Very limited   Depth to   saturated zone	1.00
47A: Minoa	     80 	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	      1.00	  Very limited   Depth to   saturated zone	1.00
48A: Colonie	80	    Not limited		    Not limited		    Not limited	
48B: Colonie	80	  Not limited 		  Not limited		  Somewhat limited   Slope	0.50
48C: Colonie	     80 	  Somewhat limited   Slope 	0.63	  Somewhat limited   Slope	      0.63	  Very limited   Slope	1.00
49A: Red Hook	   85   	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	    1.00 	  Very limited   Depth to   saturated zone	1.00

Table 16.—Dwellings and Small Commercial Buildings—Continued

Map symbol and soil name	Pct. of map	basements	ut	Dwellings with basements		Small commercia   buildings	1
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
50A: Canaseraga	     85   	  Somewhat limited   Depth to   saturated zone	    0.98 	  Very limited   Depth to   saturated zone	1.00	  Somewhat limited   Depth to   saturated zone	0.98
50B: Canaseraga	   85   	  Somewhat limited   Depth to   saturated zone	    0.98 	  Very limited   Depth to   saturated zone	    1.00 	Somewhat limited   Depth to   saturated zone   Slope	0.98
50C: Canaseraga	     85     	  Somewhat limited   Depth to   saturated zone   Slope	    0.98    0.63	  Very limited   Depth to   saturated zone   Slope	    1.00    0.63	  Very limited   Slope     Depth to   saturated zone	1.00
51B: Chadakoin	     85 	    Not limited 		  Somewhat limited   Depth to   saturated zone	      0.61	  Somewhat limited   Slope	0.50
51C: Chadakoin	     85   	  Somewhat limited   Slope 	0.63	  Somewhat limited   Slope   Depth to   saturated zone	    0.63  0.61	  Very limited   Slope 	1.00
51D: Chadakoin	     85 	  Very limited   Slope	1.00	  Very limited   Slope	      1.00	  Very limited   Slope	1.00
51E: Chadakoin	     85 	  Very limited   Slope	1.00	  Very limited   Slope	1.00	  Very limited   Slope	1.00
51F: Chadakoin	     85 	  Very limited   Slope	1.00	  Very limited   Slope	1.00	  Very limited   Slope	1.00
52B: Valois	     85 	  Not limited	     	  Not limited		  Somewhat limited   Slope	0.50
52C: Valois	     85 	  Somewhat limited   Slope	0.63	  Somewhat limited   Slope	0.63	  Very limited   Slope	1.00
52D: Valois	     80 	  Very limited   Slope	1.00	  Very limited   Slope	1.00	  Very limited   Slope	1.00
52E: Valois	     80 	  Very limited   Slope	1.00	  Very limited   Slope	1.00	  Very limited   Slope	1.00
52F: Valois	     80 	  Very limited   Slope 	    1.00	  Very limited   Slope 	      1.00	  Very limited   Slope 	1.00

Table 16.—Dwellings and Small Commercial Buildings—Continued

Map symbol and soil name	Pct. of map unit	basements	ut	Dwellings with basements		Small commercial   buildings 		
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	
53C: Valois	30	  Somewhat limited   Slope	0.04	  Somewhat limited   Slope	0.04	  Very limited   Slope	1.00	
Volusia	   25   	  Very limited   Depth to   saturated zone   Slope	1.00	saturated zone	  1.00    0.04	saturated zone	1.00	
Mardin	   20   	  Very limited   Depth to   saturated zone   Slope	  1.00    0.04	saturated zone	  1.00    0.04	saturated zone	1.00	
55A: Darien	     85   	Very limited Depth to saturated zone	      1.00	  Very limited   Depth to   saturated zone	      1.00	Very limited Depth to saturated zone	1.00	
55B: Darien	   85   	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	    1.00 	  Very limited   Depth to   saturated zone   Slope	1.00	
55C: Darien	     85     	  Very limited   Depth to   saturated zone   Slope	    1.00    0.63	saturated zone	    1.00    0.63	_	1.00	
56B: Chautauqua	     80   	  Somewhat limited   Depth to   saturated zone	      0.77	  Very limited   Depth to   saturated zone	1.00	    Somewhat limited	0.77	
56C: Chautauqua	     80     	  Somewhat limited   Depth to   saturated zone   Slope	    0.77    0.63	  Very limited   Depth to   saturated zone   Slope	    1.00    0.63	  Very limited   Slope     Depth to   saturated zone	1.00	
56D: Chautauqua	   80   	   Very limited   Slope   Depth to   saturated zone	      1.00  0.77	  Very limited   Slope   Depth to   saturated zone	      1.00  1.00	  Very limited   Slope   Depth to   saturated zone	1.00	
57A: Busti	   80 	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	      1.00	  Very limited   Depth to   saturated zone	1.00	
57B: Busti	     80   	  Very limited   Depth to   saturated zone	      1.00	  Very limited   Depth to   saturated zone	      1.00	  Very limited   Depth to   saturated zone   Slope	1.00	

Table 16.—Dwellings and Small Commercial Buildings—Continued

Map symbol and soil name	Pct. of map unit	basements	ut	Dwellings with basements		   Small commercia   buildings	1
	unit	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
57C: Busti	     80     	  Very limited   Depth to   saturated zone   Slope	    1.00    0.63	  Very limited   Depth to   saturated zone   Slope	      1.00    0.63	  Very limited   Slope     Depth to   saturated zone	1.00
58B: Rushford	     80     	  Somewhat limited   Depth to   saturated zone	    0.84 	  Very limited   Depth to   saturated zone	    1.00 	  Somewhat limited   Depth to   saturated zone   Slope	0.84
58C: Rushford	   80     	Somewhat limited   Depth to   saturated zone   Slope	  0.84    0.63	  Very limited   Depth to   saturated zone   Slope	  1.00    0.63	   Very limited   Slope     Depth to   saturated zone	1.00
59B: Yorkshire	     85   	   Very limited   Depth to   saturated zone	    1.00 	  Very limited   Depth to   saturated zone	      1.00	   Very limited   Depth to   saturated zone   Slope	1.00
59C: Yorkshire	   85     	  Very limited   Depth to   saturated zone   Slope	  1.00    0.63	  Very limited   Depth to   saturated zone   Slope	    1.00    0.63	  Very limited   Slope   Depth to   saturated zone	1.00
59D: Yorkshire	   85   	  Very limited   Slope   Depth to   saturated zone	    1.00  1.00	  Very limited   Slope   Depth to   saturated zone	    1.00  1.00	  Very limited   Slope   Depth to   saturated zone	1.00
60A: Napoli	     80   	  Very limited   Depth to   saturated zone	    1.00	  Very limited   Depth to   saturated zone	    1.00	  Very limited   Depth to   saturated zone	1.00
60B: Napoli	   80   	   Very limited   Depth to   saturated zone	    1.00 	  Very limited   Depth to   saturated zone	    1.00 	Very limited Depth to saturated zone Slope	1.00
60C: Napoli	     80     	  Very limited   Depth to   saturated zone   Slope	    1.00    0.63	  Very limited   Depth to   saturated zone   Slope	    1.00    0.63	  Very limited   Slope   Depth to   saturated zone	1.00
60D: Napoli	   80   	   Very limited   Slope   Depth to   saturated zone	      1.00  1.00	  Very limited   Slope   Depth to   saturated zone	    1.00  1.00	   Very limited   Slope   Depth to   saturated zone	1.00

Table 16.—Dwellings and Small Commercial Buildings—Continued

Map symbol and soil name	Pct. of map unit	Dwellings witho basements	out	Dwellings with basements		Small commercia   buildings 	1
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
61B: Schuyler	80	  Somewhat limited   Depth to   saturated zone	0.77	  Very limited   Depth to   saturated zone	      1.00	  Somewhat limited   Depth to   saturated zone   Slope	0.77
61C: Schuyler	   80     	   Somewhat limited   Depth to   saturated zone   Slope	0.77	   Very limited   Depth to   saturated zone   Slope	  1.00    0.63	  Very limited   Slope     Depth to   saturated zone	  1.00    0.77
61D: Schuyler	80	Very limited Slope Depth to saturated zone	1.00	   Very limited   Slope   Depth to   saturated zone	  1.00  1.00	   Very limited   Slope   Depth to   saturated zone	1.00
61E: Schuyler	80	   Very limited   Slope   Depth to   saturated zone	1.00	   Very limited   Slope   Depth to   saturated zone	  1.00  1.00	  Very limited   Slope   Depth to   saturated zone	1.00
61F: Schuyler	80	Very limited Slope Depth to saturated zone	1.00	   Very limited   Slope   Depth to   saturated zone	  1.00  1.00	   Very limited   Slope   Depth to   saturated zone	1.00
62B: Mardin	85	Very limited Depth to saturated zone	1.00	   Very limited   Depth to   saturated zone	    1.00 	   Very limited   Depth to   saturated zone   Slope	1.00
62C: Mardin	85	Very limited Depth to saturated zone Slope	1.00	   Very limited   Depth to   saturated zone   Slope	  1.00    0.63	  Very limited   Slope     Depth to   saturated zone	1.00
62D: Mardin	   85 	   Very limited   Slope   Depth to   saturated zone	1.00	   Very limited   Slope   Depth to   saturated zone	      1.00  1.00	  Very limited   Slope   Depth to   saturated zone	1.00
63B: Langford	85	Somewhat limited   Depth to   saturated zone	0.81	  Very limited   Depth to   saturated zone	    1.00 	  Somewhat limited   Depth to   saturated zone   Slope	0.81
63C: Langford	85	Somewhat limited   Depth to   saturated zone   Slope	0.81	   Very limited   Depth to   saturated zone   Slope	  1.00    0.63	  Very limited   Slope   Depth to   saturated zone	1.00

Table 16.—Dwellings and Small Commercial Buildings—Continued

Map symbol and soil name	Pct. of map	basements	ut	Dwellings with basements		Small commercia buildings	1
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
63D: Langford	     85     	  Very limited   Slope   Depth to   saturated zone	    1.00  0.81	  Very limited   Slope   Depth to   saturated zone	    1.00  1.00	  Very limited   Slope   Depth to   saturated zone	1.00
64C: Mardin	   85       	  Very limited   Depth to   saturated zone   Slope	  1.00    0.63	  Very limited   Depth to   saturated zone   Slope	  1.00    0.63	Very limited   Slope     Depth to   saturated zone	1.00
66B: Volusia	   80   	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	    1.00 	Very limited Depth to saturated zone Slope	1.00
67A: Dalton	   80   	  Very limited   Depth to   saturated zone	    1.00 	  Very limited   Depth to   saturated zone	    1.00 	   Very limited   Depth to   saturated zone	1.00
67B: Dalton	   80     	  Very limited   Depth to   saturated zone	    1.00 	  Very limited   Depth to   saturated zone	    1.00   	Very limited	1.00
68A: Volusia	   80   	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	1.00	   Very limited   Depth to   saturated zone	1.00
68B: Volusia	   80   	  Very limited   Depth to   saturated zone	    1.00 	  Very limited   Depth to   saturated zone	    1.00 	   Very limited   Depth to   saturated zone   Slope	1.00
68C: Volusia	     80   	  Very limited   Depth to   saturated zone   Slope	    1.00    0.63	  Very limited   Depth to   saturated zone   Slope	    1.00    0.63	  Very limited   Slope     Depth to	1.00
69A: Erie	       80   	    Very limited   Depth to   saturated zone	        1.00	    Very limited   Depth to   saturated zone	        1.00	saturated zone  Very limited  Depth to  saturated zone	1.00
69B: Erie	   80   	  Very limited   Depth to   saturated zone	    1.00 	  Very limited   Depth to   saturated zone	    1.00 	Very limited Depth to saturated zone Slope	1.00

Table 16.—Dwellings and Small Commercial Buildings—Continued

Map symbol and soil name	Pct. of map unit	basements	ut	Dwellings with basements		Small commercial   buildings 	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
69C: Erie	     80   	   Very limited   Depth to   saturated zone   Slope	    1.00    0.63	Very limited   Depth to   saturated zone   Slope	    1.00    0.63	Very limited Slope Depth to	1.00
71E:		 		 		saturated zone   	
Mongaup	85     	Very limited   Slope   Depth to hard   bedrock	  1.00  0.71	Very limited   Slope   Depth to hard   bedrock	1.00	Very limited   Slope   Depth to hard   bedrock	1.00
71F: Mongaup	     85     	  Very limited   Slope   Depth to hard   bedrock	1.00	  Very limited   Slope   Depth to hard   bedrock	  1.00  1.00	  Very limited   Slope   Depth to hard   bedrock	1.00
72B: Towerville	   80     	  Somewhat limited   Depth to   saturated zone   Depth to hard   bedrock	  0.77    0.29	   Very limited   Depth to   saturated zone   Depth to hard   bedrock	  1.00    1.00	Somewhat limited   Depth to   saturated zone   Depth to hard   bedrock   Slope	  0.77    0.29    0.12
72C: Towerville	   80       	  Somewhat limited   Depth to   saturated zone  Slope     Depth to hard   bedrock	0.77	   Very limited   Depth to   saturated zone   Depth to hard   bedrock   Slope	    1.00    1.00    0.63	   Very limited   Slope   Depth to   saturated zone   Depth to hard   bedrock	    1.00    0.77    0.29
72D: Towerville	     80     		  1.00  0.77    0.29	   Very limited   Slope   Depth to   saturated zone   Depth to hard   bedrock	  1.00  1.00   	Very limited   Slope   Depth to   saturated zone   Depth to hard   bedrock	  1.00  0.77    0.29
72E: Towerville	     80       	   Very limited   Slope   Depth to   saturated zone   Depth to hard   bedrock	    1.00  0.77    0.29	   Very limited   Slope   Depth to   saturated zone   Depth to hard   bedrock	    1.00  1.00    1.00	   Very limited   Slope   Depth to   saturated zone   Depth to hard   bedrock	    1.00  0.77    0.29
72F: Towerville	   80       	Very limited   Slope   Depth to   saturated zone   Depth to hard   bedrock	  1.00  0.77    0.29	Very limited Slope Depth to saturated zone Depth to hard bedrock	  1.00  1.00    1.00	Very limited Slope Depth to saturated zone Depth to hard bedrock	  1.00  0.77    0.29

Table 16.—Dwellings and Small Commercial Buildings—Continued

Map symbol and soil name	Pct. of map unit	Dwellings witho basements	ut	Dwellings with basements		Small commercial buildings	
	 	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73B: Gretor	   80       	  Very limited   Depth to   saturated zone   Depth to hard   bedrock	    1.00    0.84	   Very limited   Depth to   saturated zone   Depth to hard   bedrock	      1.00    1.00	Very limited   Depth to   saturated zone   Depth to hard   bedrock   Slope	  1.00  0.84  0.50
73C: Gretor	   80       	   Very limited   Depth to   saturated zone   Depth to hard   bedrock   Slope	  1.00    0.84    0.63	Very limited   Depth to   saturated zone   Depth to hard   bedrock   Slope	  1.00    1.00    0.63	Very limited Slope Depth to saturated zone Depth to hard bedrock	  1.00    1.00    0.84
74: Ashville	     80   	  Very limited   Depth to   saturated zone	      1.00	  Very limited   Depth to   saturated zone	      1.00	  Very limited   Depth to   saturated zone	1.00
75: Alden	   85   	  Very limited   Ponding   Depth to   saturated zone	  1.00  1.00	  Very limited   Ponding   Depth to   saturated zone	  1.00  1.00	   Very limited   Ponding   Depth to   saturated zone	1.00
76A: Orpark	     80     	   Very limited   Depth to   saturated zone   Depth to hard   bedrock	    1.00    0.79	   Very limited   Depth to   saturated zone   Depth to hard   bedrock	    1.00    1.00	   Very limited   Depth to   saturated zone   Depth to hard   bedrock	1.00
76B: Orpark	   80       	   Very limited   Depth to   saturated zone   Depth to hard   bedrock	  1.00    0.79	   Very limited   Depth to   saturated zone   Depth to hard   bedrock	  1.00    1.00	Very limited Depth to saturated zone Depth to hard bedrock Slope	0.79
76C: Orpark	   80         	   Very limited   Depth to   saturated zone   Depth to hard   bedrock   Slope	  1.00    0.79    0.63	   Very limited   Depth to   saturated zone   Depth to hard   bedrock   Slope	  1.00    1.00    0.63	Very limited   Slope   Depth to   saturated zone   Depth to hard   bedrock	  1.00    1.00    0.79
77A: Chippewa	     80   	     Very limited   Depth to   saturated zone	      1.00	     Very limited   Depth to   saturated zone	      1.00	  Very limited   Depth to   saturated zone	1.00

Table 16.—Dwellings and Small Commercial Buildings—Continued

Map symbol and soil name	Pct. of map unit	Dwellings witho	ut	Dwellings with basements		   Small commercia   buildings 	al
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
78A: Hornell	   80       	   Very limited   Depth to   saturated zone   Shrink-swell	    1.00    0.50	   Very limited   Depth to   saturated zone   Shrink-swell   Depth to soft   bedrock	  1.00    0.50  0.15	   Very limited   Depth to   saturated zone   Shrink-swell	1.00
78B: Hornell	   80       	   Very limited   Depth to   saturated zone   Shrink-swell	  1.00    0.50	Very limited   Depth to   saturated zone   Shrink-swell   Depth to soft   bedrock	  1.00    0.50  0.15	   Very limited   Depth to   saturated zone   Slope   Shrink-swell	1.00
78C: Hornell	   80           	   Very limited   Depth to   saturated zone   Slope   Shrink-swell	1.00	Very limited   Depth to   saturated zone   Slope   Shrink-swell   Depth to soft   bedrock	  1.00    0.63    0.50  0.15	   Very limited   Slope   Depth to   saturated zone   Shrink-swell	1.00
78D: Hornell	   80         	   Very limited   Slope   Depth to   saturated zone   Shrink-swell	  1.00  1.00    0.50	Very limited   Slope   Depth to   saturated zone   Shrink-swell   Depth to soft   bedrock	  1.00  1.00    0.50  0.15	   Very limited   Slope   Depth to   saturated zone   Shrink-swell	1.00
78F: Hornell	   40         	   Very limited   Slope   Depth to   saturated zone   Shrink-swell	  1.00  1.00      0.50	   Very limited   Slope   Depth to   saturated zone   Shrink-swell   Depth to soft   bedrock	  1.00  1.00    0.50  0.15	   Very limited   Slope   Depth to   saturated zone   Shrink-swell	1.00
Hudson	   35     	Very limited   Slope   Depth to   saturated zone   Shrink-swell	1.00	Very limited   Slope   Depth to   saturated zone   Shrink-swell	  1.00  1.00      0.50	Very limited   Slope   Depth to   saturated zone   Shrink-swell	1.00
79B: Mongaup	   85   	  Somewhat limited   Depth to hard   bedrock	0.71	  Very limited   Depth to hard   bedrock	    1.00 	  Somewhat limited   Depth to hard   bedrock   Slope	0.71
79C: Mongaup	   85   	  Somewhat limited   Depth to hard   bedrock   Slope	0.71	  Very limited   Depth to hard   bedrock   Slope	  1.00    0.63	  Very limited   Slope   Depth to hard   bedrock	1.00

Table 16.—Dwellings and Small Commercial Buildings—Continued

Map symbol and soil name	Pct. of map	Dwellings witho basements	ut	Dwellings with basements		Small commercia   buildings	11
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
79D: Mongaup	     85     	  Very limited   Slope   Depth to hard   bedrock	1.00	  Very limited   Slope   Depth to hard   bedrock	    1.00  1.00	  Very limited   Slope   Depth to hard   bedrock	1.00
79E: Mongaup	   85     	   Very limited   Slope   Depth to hard   bedrock	    1.00  0.71	   Very limited   Slope   Depth to hard   bedrock	    1.00  1.00	   Very limited   Slope   Depth to hard   bedrock	1.00
79F: Mongaup	   85     	  Very limited   Slope   Depth to hard   bedrock	  1.00  0.71	   Very limited   Slope   Depth to hard   bedrock	  1.00  1.00	   Very limited   Slope   Depth to hard   bedrock	1.00
80A: Fremont	   80   	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	1.00
80B: Fremont	   80   	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	1.00	   Very limited   Depth to   saturated zone   Slope	1.00
80C: Fremont	   80     	   Very limited   Depth to   saturated zone   Slope	  1.00    0.63	   Very limited   Depth to   saturated zone   Slope	  1.00    0.63	Very limited Slope Depth to saturated zone	1.00
81B: Varysburg	     85     	  Somewhat limited   Depth to   saturated zone	      0.20   	  Very limited   Depth to   saturated zone   Shrink-swell	    1.00    0.50	  Somewhat limited   Slope   Depth to   saturated zone	0.50
81C: Varysburg	   85       	  Somewhat limited   Slope     Depth to   saturated zone	0.63	   Very limited   Depth to   saturated zone   Slope     Shrink-swell	    1.00    0.63    0.50	  Very limited   Slope     Depth to   saturated zone	1.00
81D: Varysburg	     85     	   Very limited   Slope   Depth to   saturated zone	    1.00  0.20	Very limited Slope Depth to saturated zone Shrink-swell	    1.00  1.00    0.50	   Very limited   Slope   Depth to   saturated zone	1.00

Table 16.-Dwellings and Small Commercial Buildings-Continued

Map symbol and soil name	Pct. of map unit	Dwellings witho basements	ut	Dwellings with basements		Small commercial   buildings 	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
81E: Varysburg	     85       	  Very limited   Slope   Depth to   saturated zone	    1.00  0.20	   Very limited   Slope   Depth to   saturated zone   Shrink-swell	    1.00  1.00    0.50	  Very limited   Slope   Depth to   saturated zone	    1.00  0.20
82F: Rock outcrop	50	  Not rated		Not rated		Not rated	
Manlius	   30   	   Very limited   Slope   Depth to hard   bedrock	  1.00  0.15	Very limited Slope Depth to hard bedrock	1.00	Very limited Slope Depth to hard bedrock	1.00
84B: Elko	   85       	  Somewhat limited   Depth to   saturated zone   Shrink-swell	0.95	   Very limited   Depth to   saturated zone   Shrink-swell	  1.00    0.50	  Somewhat limited   Depth to   saturated zone   Slope   Shrink-swell	  0.95    0.50  0.50
84C: Elko	   85     	Somewhat limited   Depth to   saturated zone   Slope	0.95	Very limited	    1.00    0.63	Very limited   Slope   Depth to   saturated zone	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
85B: Onoville	   85     	   Very limited   Depth to   saturated zone   Shrink-swell	    1.00    0.50	Very limited Depth to saturated zone Shrink-swell	    1.00    0.50	   Very limited   Depth to   saturated zone   Slope   Shrink-swell	1.00
85C: Onoville	     85 	  Very limited   Depth to   saturated zone	      1.00	   Very limited   Depth to   saturated zone	1.00	  Very limited   Slope	1.00
		Slope	0.63	Slope	0.63	Depth to saturated zone	1.00
85D:	   	Shrink-swell   	0.50	Shrink-swell   	0.50	Shrink-swell   	0.50
Onoville	85       	Very limited   Slope   Depth to   saturated zone   Shrink-swell	  1.00  1.00    0.50	Very limited   Slope   Depth to   saturated zone   Shrink-swell	  1.00  1.00    0.50	Very limited   Slope   Depth to   saturated zone   Shrink-swell	1.00
86B: Eldred	   85     	  Somewhat limited   Depth to   saturated zone   Shrink-swell	    0.77    0.50	   Very limited   Depth to   saturated zone   Shrink-swell	    1.00    0.50	   Somewhat limited   Depth to   saturated zone   Slope   Shrink-swell	0.77

Table 16.—Dwellings and Small Commercial Buildings—Continued

Map symbol and soil name	Pct. of	Dwellings witho basements	ut	Dwellings with basements		Small commercia   buildings	1
	unit			 		 	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
	!		!		<u> </u>		·
86C:	1		1	! 		! 	1
Eldred	85	  Somewhat limited	1	  Very limited		  Very limited	1
214164	03	Depth to	0.77	Depth to	1.00	Slope	1.00
	i	saturated zone		saturated zone		220p0	
	i	Slope	0.63	Slope	0.63	Depth to	0.77
	i					saturated zone	
	i	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
	i		1				
86D:	i	İ	i	İ	i	İ	i
Eldred	85	  Very limited	İ	  Very limited	İ	  Very limited	İ
	i	Slope	1.00	Slope	1.00	Slope	1.00
	i	Depth to	0.77	Depth to	1.00	Depth to	0.77
	i	saturated zone	İ	saturated zone		saturated zone	i
	i	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
	İ	į	į į	İ	İ	İ	i
87B:	İ	į	İ	İ	İ	İ	İ
Shongo	80	Very limited	İ	  Very limited	İ	  Very limited	İ
-	İ	Depth to	1.00	Depth to	1.00	Depth to	1.00
	İ	saturated zone	İ	saturated zone	İ	saturated zone	İ
	İ	Shrink-swell	0.50	Shrink-swell	0.50	Slope	0.88
	Ì		İ		İ	Shrink-swell	0.50
	1				ĺ		
87C:							
Shongo	80	Very limited		Very limited		Very limited	
		Depth to	1.00	Depth to	1.00	Slope	1.00
		saturated zone		saturated zone			
		Slope	0.63	Slope	0.63	Depth to	1.00
						saturated zone	
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
	ļ	ļ	ļ		ļ		ļ
88A:	ļ	ļ	ļ		ļ		ļ
Ivory	85	Very limited		Very limited		Very limited	
		Depth to	1.00	Depth to	1.00	Depth to	1.00
	!	saturated zone		saturated zone		saturated zone	
	!	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
005				 			
88B:	05	  Very limited				 	
Ivory	85	Depth to	1.00	Very limited	1.00	Very limited   Depth to	1.00
	1	saturated zone	1.00	Depth to saturated zone	1.00	saturated zone	11.00
	}	Shrink-swell	0.50	Shrink-swell	0.50	Slope	0.50
	}	SHITHK-SWEIT	0.50	SHITHK-SWEIL	0.30	Shrink-swell	0.50
	1		1	! 		BILLIIK BWELL	0.30
88C:	ì		1				1
Ivory	85	  Very limited	i	  Very limited		  Very limited	
,		Depth to	1.00	Depth to	1.00	Slope	1.00
	i	saturated zone		saturated zone			
	i	Slope	0.63	Slope	0.63	Depth to	1.00
	i	į -	İ	į -	İ	saturated zone	i
	İ	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
	İ	į	İ	İ	İ	İ	İ
88D:	İ	į	İ	İ	İ	İ	İ
Ivory	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
	1	Depth to	1.00	Depth to	1.00	Depth to	1.00
	İ	saturated zone		saturated zone		saturated zone	
		saturated zone Shrink-swell	0.50	saturated zone Shrink-swell	0.50	saturated zone Shrink-swell	0.50

Table 16.-Dwellings and Small Commercial Buildings-Continued

Map symbol and soil name	Pct. of map unit	Dwellings witho basements	out	Dwellings with basements		Small commercia   buildings 	ıl
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
89B: Portville	   80     	  Very limited   Depth to   saturated zone   Shrink-swell	1.00	  Very limited   Depth to   saturated zone   Shrink-swell	    1.00    0.50	   Very limited   Depth to   saturated zone   Slope   Shrink-swell	1.00
89C: Portville	80	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	1.00	  Very limited   Slope	1.00
		Slope     Shrink-swell	0.63	Slope     Shrink-swell	0.63	Depth to saturated zone Shrink-swell	1.00
90A: Brinkerton	   85   	  Very limited   Depth to   saturated zone   Shrink-swell	1.00	  Very limited   Depth to   saturated zone	    1.00   	  Very limited   Depth to   saturated zone   Shrink-swell	1.00
90B: Brinkerton	   85     	  Very limited   Depth to   saturated zone   Shrink-swell	1.00	  Very limited   Depth to   saturated zone	    1.00   	   Very limited   Depth to   saturated zone   Slope   Shrink-swell	1.00
91A: Palms	   85       	Very limited Ponding Subsidence Depth to saturated zone Organic matter content	  1.00  1.00  1.00    1.00	Very limited   Ponding   Subsidence   Depth to   saturated zone	  1.00  1.00  1.00	Very limited Ponding Subsidence Depth to saturated zone Organic matter content	  1.00  1.00  1.00
92: Carlisle	   85         	Very limited Ponding Subsidence Depth to saturated zone Organic matter content	  1.00  1.00  1.00    1.00	Very limited Ponding Subsidence Depth to saturated zone Organic matter content	    1.00  1.00  1.00    1.00	Very limited Ponding Subsidence Depth to saturated zone Organic matter content	  1.00  1.00  1.00 
93: Saprists, inundated-	   85         	Very limited   Ponding   Subsidence   Depth to   saturated zone   Organic matter   content	  1.00  1.00  1.00    1.00	  Very limited   Ponding   Subsidence   Depth to   saturated zone	  1.00  1.00  1.00	Very limited   Ponding   Subsidence   Depth to   saturated zone   Organic matter   content	1.00  1.00  1.00  1.00
94B: Frewsburg	   80       	   Very limited   Depth to   saturated zone   Depth to hard   bedrock	1.00	Very limited Depth to saturated zone Depth to hard bedrock	  1.00    1.00	Very limited Depth to saturated zone Slope Depth to hard bedrock	0.12

Table 16.—Dwellings and Small Commercial Buildings—Continued

Map symbol and soil name	Pct. of map	basements	ut	Dwellings with basements		   Small commercia   buildings	1
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
94C: Frewsburg	   80         	  Very limited   Depth to   saturated zone   Slope     Depth to hard   bedrock	1.00	   Very limited   Depth to   saturated zone   Depth to hard   bedrock   Slope	  1.00    1.00    0.63	   Very limited   Slope   Depth to   saturated zone   Depth to hard   bedrock	  1.00    1.00    0.01
95B: Mandy	     85       	  Somewhat limited   Depth to hard   bedrock	      0.20   	  Very limited   Depth to hard   bedrock	      1.00   	  Somewhat limited   Slope     Depth to hard   bedrock	0.50
95C: Mandy	   85     	Somewhat limited   Slope   Depth to hard   bedrock	0.63	  Very limited   Depth to hard   bedrock   Slope	  1.00    0.63	Very limited   Slope   Depth to hard   bedrock	1.00
95D: Mandy	     85   	   Very limited   Slope   Depth to hard   bedrock	    1.00  0.20	   Very limited   Slope   Depth to hard   bedrock	    1.00  1.00	  Very limited   Slope   Depth to hard   bedrock	1.00
95E: Mandy	     85     	  Very limited   Slope   Depth to hard   bedrock	  1.00  0.20	  Very limited   Slope   Depth to hard   bedrock	    1.00  1.00	  Very limited   Slope   Depth to hard   bedrock	1.00
95F: Mandy	   85     	  Very limited   Slope   Depth to hard   bedrock	  1.00  0.20	  Very limited   Slope   Depth to hard   bedrock	  1.00  1.00	   Very limited   Slope   Depth to hard   bedrock	1.00
96B: Carrollton	   80         	   Somewhat limited   Depth to hard   bedrock   Depth to   saturated zone	  0.46    0.01	   Very limited   Depth to hard   bedrock   Depth to   saturated zone	1.00	Somewhat limited Slope Depth to hard bedrock Depth to saturated zone	0.50
96C: Carrollton	   80     	  Somewhat limited   Slope     Depth to hard   bedrock	  0.63    0.46	  Very limited   Depth to hard   bedrock   Slope	  1.00    0.63	  Very limited   Slope     Depth to hard   bedrock	1.00
96D: Carrollton	   80     	  Very limited   Slope   Depth to hard   bedrock	    1.00  0.46 	  Very limited   Slope   Depth to hard   bedrock	    1.00  1.00	  Very limited   Slope   Depth to hard   bedrock	1.00

Table 16.-Dwellings and Small Commercial Buildings-Continued

Map symbol and soil name	Pct. of map	basements	ut	Dwellings with basements		Small commercia buildings	.1
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
96E: Carrollton	     80   	   Very limited   Slope   Depth to hard   bedrock	    1.00  0.46	   Very limited   Slope   Depth to hard   bedrock	    1.00  1.00	   Very limited   Slope   Depth to hard   bedrock	1.00
96F: Carrollton	   80   	  Very limited   Slope   Depth to hard   bedrock	    1.00  0.46	  Very limited   Slope   Depth to hard   bedrock	  1.00  1.00	  Very limited   Slope   Depth to hard   bedrock	1.00
97B: Kinzua	     85   	  Not limited 		  Somewhat limited   Depth to   saturated zone	      0.15	  Somewhat limited   Slope	0.50
97C: Kinzua	     85   	  Somewhat limited   Slope 	    0.63 	Somewhat limited   Slope   Depth to   saturated zone	    0.63  0.15	  Very limited   Slope	1.00
97D: Kinzua	     85 	  Very limited   Slope	1.00	  Very limited   Slope	1.00	  Very limited   Slope	1.00
97E: Kinzua	     85 	  Very limited   Slope	1.00	  Very limited   Slope	1.00	  Very limited   Slope	1.00
97F: Kinzua	     85 	  Very limited   Slope	1.00	  Very limited   Slope	1.00	  Very limited   Slope	1.00
98D: Kinzua	     85 	  Very limited   Slope	1.00	  Very limited   Slope	1.00	  Very limited   Slope	1.00
98E: Kinzua	     85 	  Very limited   Slope	1.00	  Very limited   Slope	1.00	  Very limited   Slope	1.00
99B: Buchanan	     85 	  Somewhat limited   Depth to   saturated zone	0.67	  Very limited   Depth to   saturated zone	1.00	  Somewhat limited   Slope	0.88
	     	Shrink-swell	0.50	Shrink-swell	0.50	Depth to saturated zone Shrink-swell	0.67
99C: Buchanan	     85   	  Somewhat limited   Depth to   saturated zone   Slope	    0.67    0.63	   Very limited   Depth to   saturated zone   Slope	    1.00    0.63	Very limited Slope Depth to	1.00
	 	   Shrink-swell	0.50	   Shrink-swell	0.50	saturated zone Shrink-swell	0.50

Table 16.—Dwellings and Small Commercial Buildings—Continued

Map symbol and soil name	Pct.  Dwellings without   of   basements  map    unit			Dwellings with basements		Small commercia buildings	11
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
99D: Buchanan	     85     	Very limited Slope Depth to saturated zone Shrink-swell	    1.00  0.67    0.50	Very limited Slope Depth to saturated zone Shrink-swell	    1.00  1.00    0.50	Very limited Slope Depth to saturated zone Shrink-swell	1.00
100: Udorthents	     85	    Not rated		    Not rated		    Not rated	
101: Udorthents, refuse substratum	       90	      Not rated		      Not rated		      Not rated	
102C: Mandy	   40 	  Somewhat limited   Depth to hard   bedrock	0.20	  Very limited   Depth to hard   bedrock	1.00	  Very limited   Slope	1.00
		Slope   	0.04	Slope   	0.04	Depth to hard bedrock	0.20
Rock outcrop	35	  Not rated 		  Not rated 		  Not rated 	
103C: Knapp Creek	   40   	  Somewhat limited   Slope 	    0.04 	Somewhat limited   Slope   Depth to hard   bedrock	  0.04  0.01	  Very limited   Slope 	1.00
Rock outcrop	35	  Not rated		  Not rated		  Not rated	
104B: Flatiron	   80 	  Not limited		  Not limited		  Somewhat limited   Slope	0.50
104C: Flatiron	     80 	  Somewhat limited   Slope	0.63	  Somewhat limited   Slope	0.63	  Very limited   Slope	1.00
104D: Flatiron	     80 	  Very limited   Slope	1.00	  Very limited   Slope	1.00	  Very limited   Slope	1.00
104E: Flatiron	   80 	  Very limited   Slope	1.00	  Very limited   Slope	1.00	  Very limited   Slope	1.00
108D: Hartleton	     85     	  Very limited   Slope 	    1.00 	  Very limited   Slope   Depth to hard   bedrock	    1.00  0.01	  Very limited   Slope 	1.00
108E: Hartleton	     85   	  Very limited   Slope 	      1.00	  Very limited   Slope   Depth to hard   bedrock	    1.00  0.01	  Very limited   Slope 	1.00

Table 16.—Dwellings and Small Commercial Buildings—Continued

Map symbol and soil name	Pct. of map unit	basements	ut	Dwellings with basements		Small commercial   buildings 	
	   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
108F: Hartleton	   85     	  Very limited   Slope 	1.00	  Very limited   Slope   Depth to hard   bedrock	    1.00  0.01	  Very limited   Slope 	1.00
131: Lamson	   85   	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	    1.00 	  Very limited   Depth to   saturated zone	1.00
132B: Wiscoy	   80     	  Very limited   Depth to   saturated zone	    1.00 	  Very limited   Depth to   saturated zone	    1.00 	  Very limited   Depth to   saturated zone   Slope	1.00
132C: Wiscoy	   80     	  Very limited   Depth to   saturated zone   Slope	  1.00    0.63	   Very limited   Depth to   saturated zone   Slope	  1.00    0.63	   Very limited   Slope     Depth to   saturated zone	1.00
135C: Hudson	     85     	  Somewhat limited   Depth to   saturated zone   Slope	    0.88    0.63	   Very limited   Depth to   saturated zone   Slope	    1.00    0.63	  Very limited   Slope       Depth to   saturated zone	1.00
135D: Hudson	       85     	Shrink-swell 	0.50     1.00   0.88     0.50	Shrink-swell 	0.50     1.00   1.00   0.50	Shrink-swell  Very limited  Slope  Depth to  saturated zone  Shrink-swell	0.50       1.00   0.88     0.50
135E: Hudson	   85     	  Very limited   Slope   Depth to   saturated zone   Shrink-swell	    1.00  0.88    0.50	  Very limited   Slope   Depth to   saturated zone   Shrink-swell	    1.00  1.00    0.50	  Very limited   Slope   Depth to   saturated zone   Shrink-swell	    1.00  0.88    0.50
140D: Dunkirk	     85 	    Very limited   Slope	1.00	    Very limited   Slope	1.00	    Very limited   Slope	1.00
140E: Dunkirk	     85 	    Very limited   Slope	1.00	    Very limited   Slope	1.00	    Very limited   Slope	1.00
185C: Onoville	     85 	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	1.00	  Very limited   Slope	1.00
	   	Slope     Shrink-swell	0.63	Slope     Shrink-swell	0.63	Depth to   saturated zone   Shrink-swell	1.00

Table 16.—Dwellings and Small Commercial Buildings—Continued

Map symbol and soil name	Pct. of map	Dwellings witho basements	ut	Dwellings with basements		Small commercia buildings	.1
	unit	 					
	ļ 	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
185D:		 		 		]	
Onoville	85	  Very limited		  Very limited		  Very limited	
	i	Slope	1.00	Slope	1.00	Slope	1.00
	İ	Depth to	1.00	Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone		saturated zone	
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
187B:		 		 		]	
Shongo	   80	  Very limited		  Very limited		  Very limited	
2		Depth to	1.00	Depth to	1.00	Depth to	1.00
	i	saturated zone		saturated zone		saturated zone	
	İ	Shrink-swell	0.50	Shrink-swell	0.50	Slope	0.88
			ļ		ļ	Shrink-swell	0.50
1056							
187C: Shongo	   80	  Very limited	ļ	  Very limited		  Very limited	
Bhongo	00	Depth to	1.00	Depth to	1.00	Slope	1.00
	i	saturated zone		saturated zone		510pc	
	İ	Slope	0.63	Slope	0.63	Depth to	1.00
	ĺ	ĺ	İ	ĺ	İ	saturated zone	İ
	ļ	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
188B:		 		 		]	
Cavode	   85	  Very limited	1	  Very limited		  Very limited	
041040	03	Depth to	1.00	Depth to	1.00	Depth to	1.00
	i	saturated zone		saturated zone		saturated zone	
	İ	Shrink-swell	0.50	Shrink-swell	0.50	Slope	0.50
			ļ		ļ	Shrink-swell	0.50
1000							
188C: Cavode	   85	  Very limited		  Very limited		  Very limited	
54.545	03	Depth to	1.00	Depth to	1.00	Slope	1.00
	i	saturated zone		saturated zone			
	İ	Slope	0.63	Slope	0.63	Depth to	1.00
	[					saturated zone	
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
188D:	 	 					
Cavode	85	  Very limited	1	  Very limited		  Very limited	
	İ	Slope	1.00	Slope	1.00	Slope	1.00
	İ	Depth to	1.00	Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone		saturated zone	
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
189B:		 		 		]	
Portville	80	  Very limited	ŀ	  Very limited		  Very limited	
	i	Depth to	1.00	Depth to	1.00	Depth to	1.00
	İ	saturated zone	İ	saturated zone	İ	saturated zone	İ
	ļ	Shrink-swell	0.50	Shrink-swell	0.50	Slope	0.88
						Shrink-swell	0.50
189C:	 	 					
Portville	   80	  Very limited		  Very limited		  Very limited	
		Depth to	1.00	Depth to	1.00	Slope	1.00
	İ	saturated zone	İ	saturated zone	İ	=	j
	ļ	Slope	0.63	Slope	0.63	Depth to	1.00
						saturated zone	0.50
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	

Table 16.—Dwellings and Small Commercial Buildings—Continued

Map symbol and soil name	Pct. of map	basements	out	Dwellings with basements		Small commercia   buildings	al
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
195C: Mandy	   85       	  Somewhat limited   Depth to hard   bedrock   Slope	0.20	  Very limited   Depth to hard   bedrock   Slope	    1.00    0.04	   Very limited   Slope     Depth to hard   bedrock	1.00
195D: Mandy	     85   	   Very limited   Slope   Depth to hard   bedrock	1.00	  Very limited   Slope   Depth to hard   bedrock	  1.00  1.00	  Very limited   Slope   Depth to hard   bedrock	1.00
195E: Mandy	   85   	   Very limited   Slope   Depth to hard   bedrock	1.00	  Very limited   Slope   Depth to hard   bedrock	    1.00  1.00	   Very limited   Slope   Depth to hard   bedrock	1.00
199C: Buchanan	   85   85     	  Somewhat limited   Depth to   saturated zone   Slope     Shrink-swell	0.67	  Very limited   Depth to   saturated zone   Slope     Shrink-swell	      1.00    0.63    0.50	  Very limited   Slope   Depth to   saturated zone   Shrink-swell	0.67
199D: Buchanan	     85     	   Very limited   Slope   Depth to   saturated zone   Shrink-swell	1.00	  Very limited   Slope   Depth to   saturated zone   Shrink-swell	    1.00  1.00    0.50	   Very limited   Slope   Depth to   saturated zone   Shrink-swell	1.00
289B: Ceres	   85 	  Not limited 		  Somewhat limited   Depth to hard   bedrock	      0.88	  Somewhat limited   Slope	0.50
289C: Ceres	     85   	  Somewhat limited   Slope 	0.63	  Somewhat limited   Depth to hard   bedrock   Slope	0.88	  Very limited   Slope 	1.00
289D: Ceres	   85   	  Very limited   Slope 	1.00	  Very limited   Slope   Depth to hard   bedrock	  1.00  0.88	  Very limited   Slope 	1.00
289E: Ceres	   85   	  Very limited   Slope 	1.00	  Very limited   Slope   Depth to hard   bedrock	    1.00  0.88	  Very limited   Slope 	1.00
289F: Ceres	   85   	  Very limited   Slope 	1.00	  Very limited   Slope   Depth to hard   bedrock	    1.00  0.88	  Very limited   Slope 	1.00

Table 16.—Dwellings and Small Commercial Buildings—Continued

Map symbol and soil name	  Pct.   of  map  unit	basements	ut	Dwellings with basements		   Small commercia   buildings	11
	unit	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
400: Wakeville	     80   	  Very limited   Flooding   Depth to   saturated zone	    1.00  1.00	  Very limited   Flooding   Depth to   saturated zone	    1.00  1.00	   Very limited   Flooding   Depth to   saturated zone	1.00
496B: Gilpin	   85 	  Somewhat limited   Depth to hard   bedrock   Depth to	  0.10    0.01	  Very limited   Depth to hard   bedrock   Depth to	    1.00    0.99	  Somewhat limited   Slope     Depth to hard	0.50
	     	saturated zone		saturated zone		bedrock   Depth to   saturated zone	0.01
496C: Gilpin	   85 	  Somewhat limited   Slope	0.63	  Very limited   Depth to hard   bedrock	1.00	  Very limited   Slope	1.00
	   	Depth to hard bedrock	0.10	Slope   	0.63	Depth to hard bedrock	0.10
496D: Gilpin	   85   	  Very limited   Slope   Depth to hard   bedrock	  1.00  0.10	  Very limited   Slope   Depth to hard   bedrock	  1.00  1.00	   Very limited   Slope   Depth to hard   bedrock	1.00
496E: Gilpin	     85   	  Very limited   Slope   Depth to hard   bedrock	    1.00  0.10	  Very limited   Slope   Depth to hard   bedrock	    1.00  1.00	  Very limited   Slope   Depth to hard   bedrock	1.00
496F: Gilpin	     85   	   Very limited   Slope   Depth to hard   bedrock	    1.00  0.10	   Very limited   Slope   Depth to hard   bedrock	    1.00  1.00	Very limited Slope Depth to hard bedrock	1.00
497D: Rayne	     80 	  Very limited   Slope	1.00	  Very limited   Slope	1.00	  Very limited   Slope	1.00
497E: Rayne	     80 	  Very limited   Slope	1.00	  Very limited   Slope	1.00	  Very limited   Slope	1.00
497F: Rayne	   80 	  Very limited   Slope	1.00	  Very limited   Slope	1.00	  Very limited   Slope	1.00
498E: Rayne	     80 	  Very limited   Slope	1.00	  Very limited   Slope	1.00	  Very limited   Slope	1.00
800: Holderton	   80     	  Very limited   Flooding   Depth to   saturated zone	  1.00  1.00 	  Very limited   Flooding   Depth to   saturated zone	  1.00  1.00	   Very limited   Flooding   Depth to   saturated zone	1.00

Table 16.-Dwellings and Small Commercial Buildings-Continued

Map symbol and soil name	Pct.   Dwellings without   of   basements   map		Dwellings with basements		   Small commercial   buildings 		
·	ļ ļ	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
PG: Pits, gravel	     85	    Not rated		    Not rated		    Not rated	
Ur: Urban land	     85	    Not rated 		    Not rated 		    Not rated 	
W: Water	  100 	  Not rated 		  Not rated 	   	  Not rated 	   

## Table 17.-Roads and Streets, Shallow Excavations, and Lawns and Landscaping

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	streets	d	Shallow excavations		Lawns and landscaping		
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	
1: Udifluvents	   40       	  Very limited   Flooding   Frost action	    1.00  0.50 	  Very limited   Cutbanks cave   Flooding   Depth to   saturated zone	    1.00  0.80  0.61	  Very limited   Flooding   Gravel content   Droughty     Large stones	1.00  0.22  0.01  0.01	
Fluvaquents	     35   	  Very limited   Depth to   saturated zone   Frost action	    1.00    1.00	  Very limited   Depth to   saturated zone   Cutbanks cave	    1.00    1.00	content    Very limited   Flooding     Depth to	1.00	
	İ İ	   Flooding	1.00	   Flooding	0.80	saturated zone Gravel content	0.27	
2: Hamlin	   85       	  Very limited   Frost action   Flooding	  1.00  1.00	  Somewhat limited   Flooding   Depth to   saturated zone   Cutbanks cave	  0.60  0.35    0.10	  Somewhat limited   Flooding	0.60	
3: Tioga	   85       	  Very limited   Flooding   Frost action	  1.00  0.50	Somewhat limited   Flooding   Depth to   saturated zone   Cutbanks cave	  0.60  0.35    0.10	  Somewhat limited   Flooding	0.60	
4: Teel	   85       	  Very limited   Frost action   Flooding   Depth to   saturated zone	1.00	Very limited Depth to saturated zone Flooding Cutbanks cave	  1.00    0.60    0.10	Somewhat limited   Flooding	0.60	
5: Wayland	     85   		    1.00    1.00	   Very limited   Depth to   saturated zone   Flooding	    1.00    0.80	   Very limited   Flooding     Depth to	1.00	
63.	     	   Flooding   Low strength	1.00	Cutbanks cave	0.10	saturated zone		
6A: Wyalusing	   85   	  Very limited   Depth to   saturated zone   Frost action	  1.00    1.00	   Very limited   Depth to   saturated zone   Cutbanks cave	1.00	   Very limited   Flooding     Depth to	1.00	
	   	   Flooding	1.00	   Flooding	0.80	saturated zone		

Table 17.—Roads and Streets, Shallow Excavations, and Lawns and Landscaping—Continued

Map symbol and soil name	Pct. of map unit	streets	đ	Shallow excavati	ons	Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
7A: Philo	     85 	  Very limited   Flooding	1.00	  Very limited   Depth to	1.00	    Somewhat limited   Flooding	0.60
		   Frost action 	0.50	saturated zone Flooding	0.60	   Depth to   saturated zone	0.43
		Depth to saturated zone	0.43	Cutbanks cave	0.10	 	   
	85	  Very limited   Flooding	1.00	  Very limited   Depth to   saturated zone	1.00	  Somewhat limited   Flooding	0.60
		Frost action	0.50	Flooding	0.60	Depth to saturated zone	0.43
		Depth to saturated zone	0.43	Cutbanks cave	0.10		   
9: Pawling	85	  Very limited   Flooding	1.00	  Very limited   Depth to   saturated zone	1.00	  Somewhat limited   Flooding	0.60
		   Frost action 	0.50	Saturated zone   Cutbanks cave	1.00	Depth to saturated zone	0.43
		Depth to saturated zone	0.43	Flooding	0.60		
10: Atkins	   85 	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	1.00	  Very limited   Flooding	1.00
		Frost action	1.00	Flooding	0.80	Depth to saturated zone	1.00
	   	Flooding   Low strength 	1.00	Cutbanks cave   	0.10		   
11B: Ischua	85	  Somewhat limited   Depth to hard   bedrock	0.64	  Very limited   Depth to hard   bedrock	1.00	  Somewhat limited   Depth to bedrock	0.65
		Frost action	0.50	Depth to saturated zone	1.00	Depth to saturated zone	0.43
		Depth to saturated zone Low strength	0.43	Cutbanks cave	0.10	Gravel content 	0.01
11C: Ischua	85	    Somewhat limited		    Very limited		    Somewhat limited	
	 	Depth to hard bedrock	0.64	Depth to hard bedrock	1.00	Depth to bedrock	0.65
		Slope     Frost action	0.63	Depth to   saturated zone   Slope	1.00	Slope     Depth to	0.63
		Depth to	0.43	Cutbanks cave	0.10	saturated zone   Gravel content	0.01
		saturated zone Low strength	0.22				

Table 17.—Roads and Streets, Shallow Excavations, and Lawns and Landscaping—Continued

Map symbol and soil name	Pct. Local roads and of streets			Shallow excavati	Lawns and landscaping		
	unit	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
11D: Ischua	     85 	  Very limited   Slope	1.00	    Very limited   Depth to hard   bedrock	1.00	  Very limited   Slope 	1.00
	İ İ	Depth to hard bedrock	0.64	Slope	1.00	Depth to bedrock	0.65
	j I	Frost action	0.50	Depth to saturated zone	1.00	Depth to saturated zone	0.43
	   	Depth to saturated zone Low strength	0.43	Cutbanks cave	0.10	Gravel content	0.01
11E:	l I	How belengen		 			
Ischua	85	Very limited   Slope	1.00	Very limited   Depth to hard	1.00	Very limited   Slope	1.00
	 	Depth to hard	0.64	bedrock   Slope	1.00	Depth to bedrock	0.65
	   	bedrock   Frost action	0.50	Depth to	1.00	Depth to saturated zone	0.43
	   	Depth to saturated zone	0.43	saturated zone Cutbanks cave	0.10	Saturated zone   Gravel content	0.01
44-	 	Low strength	0.22				
11F: Ischua	   85 	  Very limited   Slope 	1.00	  Very limited   Depth to hard   bedrock	1.00	  Very limited   Slope 	1.00
	İ İ	Depth to hard bedrock	0.64	Slope	1.00	Depth to bedrock	0.65
	 	Frost action	0.50	Depth to saturated zone	1.00	Depth to saturated zone	0.43
	   	Depth to saturated zone Low strength	0.43	Cutbanks cave	0.10	Gravel content	0.01
12B: Franklinville	     85   	  Somewhat limited   Frost action 	      0.50 	  Somewhat limited   Depth to   saturated zone   Cutbanks cave	    0.35    0.10	  Somewhat limited   Gravel content 	    0.01 
12C: Franklinville	   85     	  Somewhat limited   Slope   Frost action	  0.63  0.50 	  Somewhat limited   Slope   Depth to   saturated zone   Cutbanks cave	  0.63  0.35    0.10	  Somewhat limited   Slope   Gravel content	  0.63  0.01 
12D: Franklinville	   85   	  Very limited   Slope   Frost action	    1.00  0.50	  Very limited   Slope   Cutbanks cave	    1.00  0.10	  Very limited   Slope   Gravel content	  1.00  0.01
12E: Franklinville	     85   	  Very limited   Slope   Frost action	    1.00  0.50	  Very limited   Slope   Cutbanks cave	1.00	  Very limited   Slope   Gravel content	  1.00  0.01

Table 17.—Roads and Streets, Shallow Excavations, and Lawns and Landscaping—Continued

Map symbol and soil name	Pct. of map unit	streets	d	Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
14B: Hornellsville	85	    Very limited   Frost action	1.00	    Very limited   Depth to	1.00	    Very limited   Depth to	      0.99
		Low strength	1.00	saturated zone Too clayey	0.50	saturated zone Depth to bedrock	
	   	Depth to saturated zone Shrink-swell	0.99    0.50	Depth to soft bedrock Cutbanks cave	0.15    0.10		   
14C: Hornellsville	     85	    Very limited	<u> </u> 	    Very limited	 	    Very limited	<u> </u> 
normerisville		Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.99
		Low strength Depth to saturated zone	1.00  0.99	Slope   Too clayey 	0.63	Slope Depth to bedrock	0.63
		Slope	0.63	Depth to soft bedrock	0.15		
15B:	   	Shrink-swell   	0.50	Cutbanks cave   	0.10		   
Willdin	85   	Somewhat limited   Depth to   saturated zone	0.68	Very limited   Depth to   saturated zone	1.00	Somewhat limited   Depth to   saturated zone	0.68
	     	Frost action	0.50	Dense layer Cutbanks cave	0.50	Droughty Gravel content Large stones content	0.42
15C: Willdin	     85 	  Somewhat limited   Depth to   saturated zone	0.68	  Very limited   Depth to   saturated zone	1.00	  Somewhat limited   Depth to   saturated zone	0.68
	     	Slope Frost action	0.63  0.50 	Slope Dense layer Cutbanks cave	0.63  0.50  0.10	Slope Droughty Gravel content Large stones content	0.63  0.42  0.04  0.01
15D: Willdin	     85	Slope	1.00	    Very limited   Slope	1.00	    Very limited   Slope	1.00
		Depth to saturated zone Frost action	0.68    0.50 	Depth to saturated zone Dense layer Cutbanks cave	1.00    0.50  0.10	Depth to saturated zone Droughty Gravel content Large stones content	0.68     0.42   0.04   0.01
16A: Almond	     80	    Very limited   Frost action	1.00	  Very limited   Depth to	1.00	  Very limited   Depth to	0.99
		Depth to saturated zone	0.99	saturated zone Cutbanks cave	0.10	saturated zone	
	İ	Low strength	0.22				

Table 17.—Roads and Streets, Shallow Excavations, and Lawns and Landscaping—Continued

Map symbol and soil name	Pct. of map unit	streets	ıd	Shallow excavati   	ons	Lawns and landsca	ping
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
16B: Almond	   80       	   Very limited   Frost action     Depth to   saturated zone   Low strength	  1.00    0.99    0.22	  Very limited   Depth to   saturated zone   Cutbanks cave	1.00	  Very limited   Depth to   saturated zone	0.99
16C: Almond	   80     	Very limited Frost action  Depth to saturated zone Slope Low strength	  1.00    0.99    0.63  0.22	Very limited   Depth to   saturated zone   Slope   Cutbanks cave	  1.00    0.63    0.10	   Very limited   Depth to   saturated zone   Slope	0.99
17B: Salamanca	   80     	  Somewhat limited   Frost action     Depth to   saturated zone	0.50	  Very limited   Depth to   saturated zone   Cutbanks cave	1.00	  Somewhat limited   Depth to   saturated zone	0.43
17C: Salamanca	   80       	  Somewhat limited   Slope     Frost action   Depth to   saturated zone	0.63	Very limited   Depth to   saturated zone   Slope   Cutbanks cave	1.00	  Somewhat limited   Slope     Depth to   saturated zone	0.63
17D: Salamanca	     80     	Very limited   Slope   Frost action   Depth to   saturated zone	  1.00  0.50    0.43	  Very limited   Slope   Depth to   saturated zone   Cutbanks cave	  1.00  1.00    0.10	   Very limited   Slope   Depth to   saturated zone	1.00
17E: Salamanca	   80       	  Very limited   Slope   Frost action     Depth to   saturated zone	  1.00  0.50    0.43	  Very limited   Slope   Depth to   saturated zone   Cutbanks cave	  1.00  1.00   	  Very limited   Slope   Depth to   saturated zone	1.00
18A: Pope	   85 	  Very limited   Flooding   Frost action	1.00	  Somewhat limited   Flooding   Cutbanks cave	0.60	  Somewhat limited   Flooding 	0.60
19A: Olean	   85         	   Very limited   Frost action   Low strength   Shrink-swell   Depth to   saturated zone	  1.00    0.78  0.50  0.43	  Very limited   Depth to   saturated zone   Cutbanks cave	  1.00    1.00	  Somewhat limited   Depth to   saturated zone	0.43

Table 17.—Roads and Streets, Shallow Excavations, and Lawns and Landscaping—Continued

Map symbol and soil name	Pct. of map unit	streets	đ	Shallow excavati   	ons	Lawns and landscaping	
	   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
19B: Olean	     85   	  Very limited   Frost action     Low strength   Shrink-swell	    1.00    0.78  0.50	   Very limited   Depth to   saturated zone   Cutbanks cave	    1.00    1.00	  Somewhat limited   Depth to   saturated zone	0.43
		Depth to saturated zone	0.43				
20A: Unadilla	     85 	  Very limited   Frost action	1.00	  Very limited   Cutbanks cave	1.00	    Not limited   	
20B: Unadilla	   85 	  Very limited   Frost action	1.00	  Very limited   Cutbanks cave	1.00	  Not limited 	
20C: Unadilla	   85   	  Very limited   Frost action   Slope	1.00	  Very limited   Cutbanks cave   Slope	1.00	  Somewhat limited   Slope	0.63
20D: Unadilla	   85   	  Very limited   Slope   Frost action	  1.00  1.00	  Very limited   Slope   Cutbanks cave	1.00	  Very limited   Slope	1.00
22A: Allard	     85 	  Very limited   Frost action	1.00	  Very limited   Cutbanks cave	1.00	    Not limited 	
22B: Allard	   85 	  Very limited   Frost action	1.00	  Very limited   Cutbanks cave	1.00	  Not limited 	
25A: Chenango	   85   	  Somewhat limited   Frost action	0.50	  Very limited   Cutbanks cave	1.00	Somewhat limited   Gravel content   Droughty	0.06
25B: Chenango	   85   	  Somewhat limited   Frost action	    0.50	  Very limited   Cutbanks cave	    1.00	Somewhat limited   Gravel content   Droughty	0.06
25C: Chenango	     85   	  Somewhat limited   Slope   Frost action	    0.63  0.50	  Very limited   Cutbanks cave   Slope	    1.00  0.63	  Somewhat limited   Slope   Gravel content   Droughty	0.63
25D: Chenango	     85   	  Very limited   Slope   Frost action	    1.00  0.50	  Very limited   Slope   Cutbanks cave	    1.00  1.00	   Very limited   Slope   Gravel content   Droughty	  1.00  0.06  0.05
25E: Chenango	     80 	  Very limited   Slope   Frost action	    1.00  0.50	  Very limited   Slope   Cutbanks cave	    1.00  1.00	  Very limited   Slope   Gravel content   Droughty	  1.00  0.06  0.05

Table 17.—Roads and Streets, Shallow Excavations, and Lawns and Landscaping—Continued

Map symbol and soil name	Pct. of map unit	streets	đ	Shallow excavati	ons	Lawns and landscaping		
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	
25F: Chenango	     80   	  Very limited   Slope   Frost action	    1.00  0.50	  Very limited   Slope   Cutbanks cave	    1.00  1.00	   Very limited   Slope   Gravel content   Droughty	  1.00  0.06  0.05	
26A: Chenango, fan	     80   	  Somewhat limited   Frost action   Flooding	    0.50  0.40	  Very limited   Cutbanks cave   Depth to   saturated zone	    1.00  0.35	  Somewhat limited   Gravel content   Droughty	0.27	
26B: Chenango, fan	   80   	  Somewhat limited   Frost action   Flooding	  0.50  0.40	  Very limited   Cutbanks cave   Depth to   saturated zone	  1.00  0.35	  Somewhat limited   Gravel content   Droughty	0.27	
27A: Castile	   85       	Somewhat limited   Frost action   Depth to   saturated zone	0.50	  Very limited   Depth to   saturated zone   Cutbanks cave	  1.00    1.00	Somewhat limited Gravel content  Depth to saturated zone Droughty	0.68	
27B: Castile	   85       	Somewhat limited   Frost action   Depth to   saturated zone	      0.50    0.43	  Very limited   Depth to   saturated zone   Cutbanks cave	    1.00    1.00	  Somewhat limited   Gravel content   Depth to   saturated zone   Droughty	  0.68    0.43    0.24	
28A: Scio	     85     	   Very limited   Frost action     Depth to   saturated zone	    1.00    0.43	  Very limited   Depth to   saturated zone   Cutbanks cave	    1.00    1.00	  Somewhat limited   Depth to   saturated zone	0.43	
29A: Chenango	     85 	  Somewhat limited   Frost action	      0.50	  Very limited   Cutbanks cave	      1.00	  Somewhat limited   Gravel content   Droughty	0.08	
29B: Chenango	   85 	  Somewhat limited   Frost action	0.50	  Very limited   Cutbanks cave	1.00	  Somewhat limited   Gravel content   Droughty	0.08	
29C: Chenango	     85     	   Somewhat limited   Slope   Frost action	    0.63  0.50	  Very limited   Cutbanks cave   Slope	    1.00  0.63	  Somewhat limited   Slope   Gravel content   Droughty	0.63	
29D: Chenango	   85   	  Very limited   Slope   Frost action	  1.00  0.50	  Very limited   Slope   Cutbanks cave	  1.00  1.00	  Very limited   Slope   Gravel content   Droughty	  1.00  0.08  0.05	

Table 17.—Roads and Streets, Shallow Excavations, and Lawns and Landscaping—Continued

Map symbol and soil name	Pct. of map unit	   Local roads an   streets 	ıd	   Shallow excavati   	ons	Lawns and landscaping		
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	
29E: Chenango	85	  Very limited   Slope   Frost action	1.00	  Very limited   Slope   Cutbanks cave	1.00	  Very limited   Slope   Gravel content   Droughty	  1.00  0.08  0.05	
31B: Collamer	   85       	   Very limited   Frost action   Low strength   Depth to   saturated zone	  1.00    0.78  0.43	  Very limited   Depth to   saturated zone   Cutbanks cave	  1.00    0.50	  Somewhat limited   Depth to   saturated zone	0.43	
31C: Collamer	85	Very limited Frost action Low strength	1.00	Very limited   Depth to   saturated zone   Slope	    1.00    0.63	  Somewhat limited   Slope     Depth to	0.63	
		Slope   Depth to   saturated zone	0.63	Cutbanks cave	0.50	saturated zone		
32A: Churchville	   85       	Very limited Frost action Low strength Depth to saturated zone Shrink-swell	  1.00    1.00  0.99 	  Very limited   Depth to   saturated zone   Cutbanks cave	  1.00    1.00	  Very limited   Depth to   saturated zone	0.99	
32B: Churchville	   85         	Very limited Frost action Low strength Depth to saturated zone Shrink-swell	  1.00    1.00  0.99    0.50	  Very limited   Depth to   saturated zone   Cutbanks cave	1.00	  Very limited   Depth to   saturated zone	0.99	
33A: Wallington	   85   	Very limited Depth to saturated zone Frost action	1.00	Very limited   Depth to   saturated zone   Cutbanks cave	1.00	Very limited   Depth to   saturated zone   Droughty	1.00	
34: Getzville	80	   Very limited   Depth to   saturated zone   Frost action	1.00	   Very limited   Depth to   saturated zone   Cutbanks cave	1.00	  Very limited   Depth to   saturated zone	1.00	
35A: Rhinebeck	80	Very limited Frost action Low strength Depth to saturated zone Shrink-swell	  1.00  1.00  0.99 	   Very limited   Depth to   saturated zone   Too clayey   Cutbanks cave	  1.00    0.50  0.50	  Very limited   Depth to   saturated zone	0.99	

Table 17.—Roads and Streets, Shallow Excavations, and Lawns and Landscaping—Continued

Map symbol and soil name	Pct. of map unit	streets	d	Shallow excavati	ons	Lawns and landsca	ping
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
35B: Rhinebeck	   80         	Very limited Frost action  Low strength Depth to saturated zone Shrink-swell	  1.00  1.00  0.99 	  Very limited   Depth to   saturated zone   Too clayey   Cutbanks cave	  1.00    0.50  0.50	   Very limited   Depth to   saturated zone	    0.99     
35C: Rhinebeck	   80             	Very limited Frost action  Low strength Depth to saturated zone Slope Shrink-swell	  1.00  1.00  0.99    0.63  0.50	Very limited   Depth to   saturated zone   Slope   Too clayey   Cutbanks cave	  1.00  0.63  0.50 	Very limited  Depth to saturated zone Slope	0.99
36: Canadice	   75         	Very limited Depth to saturated zone Frost action Low strength Shrink-swell	  1.00  1.00  1.00  0.50	   Very limited   Depth to   saturated zone   Too clayey   Cutbanks cave	  1.00    0.50  0.10	  Very limited   Depth to   saturated zone	    1.00     
37A: Tonawanda	   80     	Very limited Frost action Depth to saturated zone	1.00	  Very limited   Depth to   saturated zone   Cutbanks cave	  1.00    0.50	   Very limited   Depth to   saturated zone	0.99
37B: Tonawanda	     80     	   Very limited   Frost action   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone   Cutbanks cave	    1.00    0.50	  Very limited   Depth to   saturated zone	      0.99   
38A: Niagara	   85       	Very limited Frost action  Depth to saturated zone Low strength	    1.00    0.99    0.22	   Very limited   Depth to   saturated zone   Cutbanks cave	    1.00    0.10	  Very limited   Depth to   saturated zone	      0.99     
38B: Niagara	   85       	Very limited Frost action  Depth to saturated zone Low strength	    1.00    0.99    0.22	  Very limited   Depth to   saturated zone   Cutbanks cave	    1.00    0.10	   Very limited   Depth to   saturated zone	      0.99     
39A: Halsey	   85       	Very limited	  1.00  1.00   	   Very limited   Ponding   Depth to   saturated zone   Cutbanks cave	  1.00  1.00   	   Very limited   Ponding   Depth to   saturated zone	    1.00  1.00

Table 17.—Roads and Streets, Shallow Excavations, and Lawns and Landscaping—Continued

Map symbol and soil name	Pct. of map unit	streets	d	Shallow excavati    -	ons	Lawns and landsca	ping
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
40A: Williamson	     85   	Frost action     Depth to	    1.00    0.60	  Very limited   Depth to   saturated zone   Cutbanks cave	1.00	Somewhat limited   Depth to   saturated zone   Droughty	0.60
40B: Williamson	       85   	saturated zone	      1.00    0.60	  Very limited   Depth to   saturated zone   Cutbanks cave	1.00	  Somewhat limited   Depth to   saturated zone   Droughty	0.60
40C: Williamson	     85       	  Very limited   Frost action     Slope   Depth to	    1.00    0.63 	  Very limited   Depth to   saturated zone   Slope   Cutbanks cave	    1.00    0.63 	  Somewhat limited   Slope       Depth to   saturated zone   Droughty	0.63
41A: Barcelona	       85     	Very limited Frost action  Depth to saturated zone Low strength	      1.00    0.99    0.22	      Very limited	1.00	      Very limited	0.99
41B: Barcelona	   85       	  Very limited   Frost action     Depth to   saturated zone   Low strength	    1.00    0.99    0.22	  Very limited   Depth to   saturated zone   Cutbanks cave	1.00	  Very limited   Depth to   saturated zone	    0.99   
42A: Elnora	     80     	  Somewhat limited   Frost action     Depth to   saturated zone	    0.50    0.43	  Very limited   Depth to   saturated zone   Cutbanks cave	  1.00    1.00	  Somewhat limited   Depth to   saturated zone   Droughty	0.43
42B: Elnora	     80     	   Somewhat limited   Frost action     Depth to   saturated zone	    0.50    0.43	   Very limited   Depth to   saturated zone   Cutbanks cave	  1.00    1.00	  Somewhat limited   Depth to   saturated zone   Droughty	0.43
43: Canandaigua, silt loam	     80       	   Very limited   Ponding   Depth to   saturated zone   Frost action   Low strength	      1.00  1.00    1.00	   Very limited   Ponding   Depth to   saturated zone   Cutbanks cave	      1.00  1.00      0.10	  Very limited   Ponding   Depth to   saturated zone	1.00

Table 17.—Roads and Streets, Shallow Excavations, and Lawns and Landscaping—Continued

Map symbol and soil name	Pct.  Local roads and   of   streets  map    unit		đ	Shallow excavati	ons	Lawns and landsca	ping
	   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
44: Canandaigua, mucky silt loam	     85       	Very limited Ponding Depth to saturated zone Frost action Low strength	      1.00  1.00    1.00	   Very limited   Ponding   Depth to   saturated zone   Cutbanks cave	      1.00  1.00      0.10	   Very limited   Ponding   Depth to   saturated zone	      1.00  1.00
45: Canandaigua, acid substratum	     80       	   Very limited   Ponding   Depth to   saturated zone   Frost action   Low strength	    1.00  1.00    1.00	   Very limited   Ponding   Depth to   saturated zone   Cutbanks cave	    1.00  1.00    0.10	Very limited Ponding Depth to saturated zone	    1.00  1.00
46: Swormville	   85     	   Very limited   Frost action     Depth to   saturated zone	  1.00    0.99	   Very limited   Depth to   saturated zone   Cutbanks cave	  1.00    1.00	  Very limited   Depth to   saturated zone	0.99
47A: Minoa	   80   	Very limited Frost action  Depth to saturated zone	  1.00    0.99	Very limited  Depth to  saturated zone  Cutbanks cave	1.00	Very limited Depth to saturated zone	0.99
48A: Colonie	     80 	  Not limited	     	  Very limited   Cutbanks cave	1.00	  Somewhat limited   Droughty	0.29
48B: Colonie	     80 	  Not limited	     	  Very limited   Cutbanks cave	1.00	  Somewhat limited   Droughty	0.29
48C: Colonie	     80   	  Somewhat limited   Slope	    0.63	  Very limited   Cutbanks cave   Slope	    1.00  0.63	Somewhat limited   Slope   Droughty	0.63
49A: Red Hook	   85     	Very limited Frost action  Depth to saturated zone	  1.00    0.99	Very limited Depth to saturated zone Cutbanks cave	1.00	Very limited Depth to saturated zone	0.99
50A: Canaseraga	     85     	  Very limited   Frost action     Depth to   saturated zone	      1.00    0.75	Very limited   Depth to   saturated zone   Dense layer   Cutbanks cave	    1.00    0.50    0.10	Somewhat limited   Depth to   saturated zone	      0.75   

Table 17.—Roads and Streets, Shallow Excavations, and Lawns and Landscaping—Continued

Map symbol and soil name	Pct. of map unit	streets		Shallow excavations		Lawns and landscaping	
	unic   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
50B: Canaseraga	     85 	  Very limited   Frost action	1.00	  Very limited   Depth to   saturated zone	1.00	  Somewhat limited   Depth to   saturated zone	0.75
	   	Depth to saturated zone	0.75	Dense layer Cutbanks cave	0.50		
50C:		 		 		 	
Canaseraga	85   	Frost action	1.00	Very limited   Depth to   saturated zone	1.00	Somewhat limited Depth to saturated zone	0.75
	   	Depth to saturated zone Slope	0.75	Slope     Dense layer	0.63    0.50	Slope   	0.63
	į	_	İ	Cutbanks cave	0.10		İ
51B: Chadakoin	     85 	    Somewhat limited   Frost action	0.50	    Somewhat limited   Depth to	0.61	    Not limited 	
	   	   		saturated zone Cutbanks cave	0.10		
51C: Chadakoin		Comprehent limited	į	  Somewhat limited	į	  Somewhat limited	
Chadakoin	85     	Slope   Frost action	0.63	Slope   Depth to   saturated zone   Cutbanks cave	0.63	Slope	0.63
51D:	 						
Chadakoin	85   	Very limited   Slope   Frost action	1.00	Very limited   Slope   Cutbanks cave	1.00	   Slope 	1.00
51E: Chadakoin	     85 	    Very limited   Slope   Frost action	1.00	    Very limited   Slope   Cutbanks cave	1.00	  Very limited   Slope	1.00
51F: Chadakoin	   85 	  Very limited   Slope   Frost action	1.00	  Very limited   Slope   Cutbanks cave	1.00	  Very limited   Slope	1.00
52B: Valois	     85 	  Somewhat limited   Frost action	0.50	  Very limited   Cutbanks cave	1.00	  Somewhat limited   Gravel content	0.06
52C: Valois	     85 	  Somewhat limited   Slope   Frost action	0.63	  Very limited   Cutbanks cave	1.00	  Somewhat limited   Slope	0.63
E2D.	   	FIOSE ACCION	0.50	Slope   	0.63	Gravel content	0.06
52D: Valois	   80 	  Very limited   Slope   Frost action	1.00	  Very limited   Slope   Cutbanks cave	  1.00  1.00	  Very limited   Slope   Gravel content	  1.00  0.06

Table 17.—Roads and Streets, Shallow Excavations, and Lawns and Landscaping—Continued

Map symbol and soil name	Pct. of	streets	đ	Shallow excavati	ons	Lawns and landscaping	
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
52E: Valois	     80   	  Very limited   Slope   Frost action	    1.00  0.50	  Very limited   Slope   Cutbanks cave	    1.00  1.00	  Very limited   Slope   Gravel content	1.00
52F: Valois	     80   	  Very limited   Slope   Frost action	    1.00  0.50	  Very limited   Slope   Cutbanks cave	    1.00  1.00	  Very limited   Slope   Gravel content	1.00
53C: Valois	   30 	  Somewhat limited   Frost action   Slope	    0.50  0.04	  Very limited   Cutbanks cave   Slope	    1.00  0.04	  Somewhat limited   Gravel content   Slope	0.06
Volusia	   25     	  Very limited   Depth to   saturated zone   Frost action   Slope	  1.00    1.00  0.04	   Very limited   Depth to   saturated zone   Dense layer   Cutbanks cave   Slope	  1.00    0.50  0.10  0.04	   Very limited   Depth to   saturated zone   Droughty   Slope   Gravel content	  1.00    0.98  0.04  0.01
Mardin	   20       	Somewhat limited   Depth to   saturated zone   Frost action   Slope	  0.96    0.50  0.04	   Very limited   Depth to   saturated zone   Dense layer   Cutbanks cave   Slope	  1.00    0.50  0.10  0.04	Somewhat limited   Depth to   saturated zone   Droughty   Slope	  0.96    0.96  0.04
55A: Darien	     85     	   Very limited   Frost action     Depth to   saturated zone	      1.00    0.99	   Very limited   Depth to   saturated zone   Cutbanks cave	    1.00    1.00	   Very limited   Depth to   saturated zone	    0.99   
55B: Darien	   85     	Very limited Frost action Depth to saturated zone	  1.00    0.99	  Very limited   Depth to   saturated zone   Cutbanks cave	  1.00    1.00	   Very limited   Depth to   saturated zone	    0.99 
55C: Darien	   85       	  Very limited   Frost action   Depth to   saturated zone   Slope	    1.00    0.99    0.63	  Very limited   Depth to   saturated zone   Cutbanks cave     Slope	    1.00    1.00    0.63	  Very limited   Depth to   saturated zone   Slope	0.99
56B: Chautauqua	     80     	Somewhat limited   Frost action   Depth to   saturated zone	0.50	Very limited   Depth to   saturated zone   Cutbanks cave	1.00	   Somewhat limited   Depth to   saturated zone	      0.43   

Table 17.—Roads and Streets, Shallow Excavations, and Lawns and Landscaping—Continued

Map symbol and soil name	Pct. of map unit	   Local roads an   streets 	d	   Shallow excavati   	ons	   Lawns and landsca   	ping
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
56C: Chautauqua	80	  Somewhat limited   Slope 	0.63	  Very limited   Depth to   saturated zone	1.00	  Somewhat limited   Slope 	0.63
	   	Frost action     Depth to	0.50	Cutbanks cave	1.00	Depth to saturated zone	0.43
56D:		saturated zone	   			 	
Chautauqua	80	Very limited   Slope   Frost action     Depth to	  1.00  0.50    0.43	Very limited   Slope   Depth to   saturated zone   Cutbanks cave	  1.00  1.00    1.00	Very limited   Slope   Depth to   saturated zone	1.00
57A:	 	saturated zone	 				
Busti	80	Very limited Frost action Depth to	1.00	Very limited   Depth to   saturated zone   Cutbanks cave	1.00	Very limited   Depth to   saturated zone	0.99
57B: Busti	       80   	saturated zone  Very limited Frost action  Depth to saturated zone	1.00	  Very limited   Depth to   saturated zone   Cutbanks cave	      1.00    1.00	  Very limited   Depth to   saturated zone	0.99
57C: Busti	80		1.00	  -  Very limited   Depth to	1.00	 	0.99
		Depth to saturated zone	0.99	saturated zone Cutbanks cave Slope	1.00	saturated zone Slope	0.63
58B:		_   		 			
Rushford	80   	Somewhat limited   Depth to   saturated zone	0.52	Very limited   Depth to   saturated zone	1.00	Somewhat limited   Droughty 	0.69
		Frost action   	0.50	Dense layer     Cutbanks cave	0.50	Depth to   saturated zone   Gravel content	0.52
58C: Rushford	80	  Somewhat limited   Slope	0.63	  Very limited   Depth to   saturated zone	1.00	  Somewhat limited   Droughty	0.69
	ļ	Depth to saturated zone	0.52	Slope	0.63	Slope	0.63
		Frost action	0.50	Dense layer     Cutbanks cave	0.50	Depth to   saturated zone   Gravel content	0.52
59B: Yorkshire	85	  Somewhat limited   Depth to   saturated zone	0.83	  Very limited   Depth to   saturated zone	1.00	  Somewhat limited   Depth to   saturated zone	0.83
		Saturated Zone   Frost action 	0.50	Cutbanks cave	0.10	Saturated zone   Droughty   Gravel content	0.48

Table 17.—Roads and Streets, Shallow Excavations, and Lawns and Landscaping—Continued

Map symbol and soil name	Pct. of map unit	streets	d	Shallow excavati   	ons	Lawns and landsca	ping
	dill't	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
59C: Yorkshire	   85       	  Somewhat limited   Depth to   saturated zone   Slope   Frost action	0.83	   Very limited   Depth to   saturated zone   Slope   Cutbanks cave	  1.00    0.63  0.10	Somewhat limited   Depth to   saturated zone   Slope   Droughty   Gravel content	0.83
59D: Yorkshire	   85         	  Very limited   Slope   Depth to   saturated zone   Frost action	  1.00  0.83    0.50	  Very limited   Slope   Depth to   saturated zone   Cutbanks cave	  1.00  1.00    0.10	   Very limited   Slope   Depth to   saturated zone   Droughty   Gravel content	  1.00  0.83    0.48  0.08
60A: Napoli	     80     	  Very limited   Depth to   saturated zone   Frost action	  1.00    1.00	  Very limited   Depth to   saturated zone   Cutbanks cave	  1.00    0.10	  Very limited   Depth to   saturated zone   Droughty	1.00
60B: Napoli	   80     	  Very limited   Depth to   saturated zone   Frost action	  1.00    1.00	  Very limited   Depth to   saturated zone   Cutbanks cave	  1.00    0.10	  Very limited   Depth to   saturated zone   Droughty	1.00
60C: Napoli	   80     	Very limited   Depth to   saturated zone   Frost action   Slope	  1.00    1.00  0.63	Very limited Depth to saturated zone Slope Cutbanks cave	  1.00    0.63  0.10	Very limited Depth to saturated zone Slope Droughty	1.00
60D: Napoli	   80   81     	   Very limited   Depth to   saturated zone   Slope     Frost action	1.00	Very limited   Slope   Depth to   saturated zone   Cutbanks cave	  1.00    1.00    0.10	Very limited   Slope   Depth to   saturated zone   Droughty	1.00
61B: Schuyler	   80       	  Somewhat limited   Frost action     Depth to   saturated zone	0.50	Very limited Depth to saturated zone Dense layer Cutbanks cave	  1.00    0.50    0.10	  Somewhat limited   Depth to   saturated zone	0.43
61C: Schuyler	     80   	  Somewhat limited   Slope     Frost action	    0.63    0.50	  Very limited   Depth to   saturated zone   Slope	    1.00    0.63	  Somewhat limited   Slope     Depth to   saturated zone	0.63
	     	Depth to saturated zone	0.43	Dense layer Cutbanks cave	0.50		

Table 17.—Roads and Streets, Shallow Excavations, and Lawns and Landscaping—Continued

Map symbol and soil name	Pct. of map unit	Local roads an streets	d	   Shallow excavati   	ons	   Lawns and landsca   	ping
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
61D: Schuyler	   80         	   Very limited   Slope   Frost action     Depth to   saturated zone	  1.00  0.50    0.43	Very limited   Slope   Depth to   saturated zone   Dense layer   Cutbanks cave	  1.00  1.00  0.50  0.10	   Very limited   Slope   Depth to   saturated zone	  1.00  0.43 
61E: Schuyler	   80         	   Very limited   Slope   Frost action   Depth to   saturated zone	  1.00  0.50    0.43	   Very limited   Slope   Depth to   saturated zone   Dense layer   Cutbanks cave	  1.00  1.00    0.50 	  Very limited   Slope   Depth to   saturated zone	  1.00  0.43 
61F: Schuyler	   80         	Very limited   Slope   Frost action   Depth to   saturated zone	  1.00  0.50    0.43	Very limited   Slope   Depth to   saturated zone   Dense layer   Cutbanks cave	  1.00  1.00    0.50	  Very limited   Slope   Depth to   saturated zone	  1.00  0.43   
62B: Mardin	   85       	  Somewhat limited   Depth to   saturated zone   Frost action	  0.96    0.50	Very limited   Depth to   saturated zone   Dense layer   Cutbanks cave	  1.00    0.50  0.10	Somewhat limited   Depth to   saturated zone   Droughty	0.96
62C: Mardin	   85         	Somewhat limited   Depth to   saturated zone   Slope   Frost action	0.96	   Very limited   Depth to   saturated zone   Slope   Dense layer   Cutbanks cave	  1.00    0.63  0.50  0.10	Somewhat limited   Depth to   saturated zone   Droughty   Slope	  0.96    0.96  0.63
62D: Mardin	   85         	   Very limited   Slope   Depth to   saturated zone   Frost action	  1.00  0.96    0.50	   Very limited   Slope   Depth to   saturated zone   Dense layer   Cutbanks cave	  1.00  1.00    0.50  0.10	   Very limited   Slope   Depth to   saturated zone   Droughty	  1.00  0.96    0.96
63B: Langford	   85         		  0.50    0.48 	Very limited   Depth to   saturated zone   Cutbanks cave   Dense layer	  1.00    1.00    0.50	Somewhat limited   Droughty	  0.49    0.48    0.01

Table 17.—Roads and Streets, Shallow Excavations, and Lawns and Landscaping—Continued

Pct. of map	of streets		Shallow excavations		Lawns and landscaping		
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	
85	  Somewhat limited   Slope	0.63	  Very limited   Depth to   saturated zone	1.00	  Somewhat limited   Slope	0.63	
	Frost action Depth to saturated zone	0.50	Cutbanks cave Slope Dense layer	1.00	Droughty Depth to saturated zone Gravel content	0.49	
0.5							
85	Very limited   Slope   Frost action	1.00	Slope Depth to	1.00	Very limited   Slope   Droughty	1.00	
	Depth to saturated zone	0.48	Cutbanks cave	1.00	Depth to saturated zone	0.48	
85	Somewhat limited   Depth to   saturated zone	0.96	Very limited   Depth to   saturated zone	1.00	Somewhat limited   Depth to   saturated zone	0.96	
	Slope   Frost action	0.63	Slope   Dense layer   Cutbanks cave	0.63 0.50 0.10	Droughty   Slope	0.96	
80	  Very limited   Depth to   saturated zone   Frost action	    1.00    1.00	Very limited   Depth to   saturated zone   Dense layer   Cuthonka gave	    1.00    0.50	Very limited   Depth to   saturated zone   Droughty   Crysol gentont	    1.00    0.98  0.01	
0.0	 						
80	Depth to   saturated zone   Frost action	1.00	Depth to   saturated zone   Cutbanks cave   Dense layer	1.00	Depth to   saturated zone   Droughty	0.35	
9.0	 		    -		 		
80	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00	
	Flost action		Dense layer	0.50	Dioughey		
80	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	1.00	
	Frost action	1.00	Dense layer Cutbanks cave	0.50	Droughty Gravel content	0.98	
80	Very limited Depth to saturated zone Frost action	    1.00    1.00	  Very limited   Depth to   saturated zone   Dense layer	    1.00    0.50	  Very limited   Depth to   saturated zone   Droughty	  1.00    0.98	
	of map unit 85 85 85 85 80	of map unit  Rating class and limiting features  85 Somewhat limited Slope Frost action Depth to saturated zone  85 Very limited Slope Frost action Depth to saturated zone  85 Somewhat limited Depth to saturated zone Slope Frost action  80 Very limited Depth to saturated zone Frost action  80 Very limited Depth to saturated zone Frost action  80 Very limited Depth to saturated zone Frost action  80 Very limited Depth to saturated zone Frost action  80 Very limited Depth to saturated zone Frost action  80 Very limited Depth to saturated zone Frost action	Rating class and limiting features  85 Somewhat limited Slope 0.63  Frost action 0.50 Depth to 0.48 Saturated zone 1.00 Frost action 0.50 Depth to 0.48 Saturated zone 0.63  Frost action 0.50  Depth to 0.63 Frost action 0.50  Depth to 0.63 Frost action 0.50  80 Very limited Depth to 0.63 Frost action 0.50  80 Very limited Depth to 0.00 Saturated zone Frost action 1.00  80 Very limited Depth to 0.00 Saturated zone Frost action 1.00  80 Very limited Depth to 0.00 Saturated zone 0.00 Frost action 1.00  80 Very limited 0.00 Saturated zone 0.00 Frost action 1.00  80 Very limited 0.00 Saturated zone 0.00 Frost action 1.00  80 Very limited 0.00 Saturated zone 0.00 Frost action 1.00  80 Very limited 0.00 Saturated zone 0.00 Frost action 1.00  80 Very limited 0.00 Saturated zone 0.00	Streets	Streets	Streets   Stre	

Table 17.—Roads and Streets, Shallow Excavations, and Lawns and Landscaping—Continued

Map symbol and soil name	Pct. of map unit	streets	ıd	Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
68C: Volusia	   80       	  Very limited   Depth to   saturated zone   Frost action   Slope	  1.00    1.00  0.63	Very limited   Depth to   saturated zone   Slope   Dense layer   Cutbanks cave	  1.00    0.63  0.50  0.10	!	  1.00    0.98  0.63  0.01
69A: Erie	   80     	  Very limited   Depth to   saturated zone   Frost action	1.00	   Very limited   Depth to   saturated zone   Dense layer   Cutbanks cave	  1.00  0.50  0.10	   Very limited   Depth to   saturated zone   Droughty   Gravel content	1.00
69B: Erie	     80     	   Very limited   Depth to   saturated zone   Frost action	1.00	   Very limited   Depth to   saturated zone   Dense layer   Cutbanks cave	1.00	Very limited   Depth to   saturated zone   Droughty   Gravel content	  1.00    1.00  0.01
69C: Erie	   80       	  Very limited   Depth to   saturated zone   Frost action   Slope	1.00	Very limited   Depth to   saturated zone   Slope   Dense layer   Cutbanks cave	1.00   0.63   0.50   0.10	!	  1.00  1.00  0.63  0.01
71E: Mongaup	   85   85         	   Very limited   Slope   Depth to hard   bedrock   Frost action	  1.00    0.71    0.50	   Very limited   Depth to hard   bedrock   Slope     Cutbanks cave	  1.00    1.00    0.10	Very limited   Slope     Depth to bedrock   Droughty   Gravel content   Large stones   content	  1.00    0.71    0.10  0.04  0.01
71F: Mongaup	     85           	   Very limited   Slope   Depth to hard   bedrock   Frost action	0.71	   Very limited   Depth to hard   bedrock   Slope   Cutbanks cave	1.00	Very limited   Slope   Depth to bedrock   Droughty   Gravel content   Large stones   content	   1.00   0.71   0.10   0.04   0.01
72B: Towerville	   80           	Somewhat limited   Frost action   Depth to   saturated zone   Depth to hard   bedrock	0.50	Very limited   Depth to hard   bedrock   Depth to   saturated zone   Cutbanks cave	  1.00    1.00    0.10	   Somewhat limited   Depth to   saturated zone   Depth to bedrock	0.43

Table 17.—Roads and Streets, Shallow Excavations, and Lawns and Landscaping—Continued

Map symbol and soil name	Pct. of map unit	Local roads an	d	Shallow excavati    -	ons	Lawns and landsca	ping
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
72C: Towerville	80	  Somewhat limited   Slope	0.63	  Very limited   Depth to hard   bedrock	1.00	  Somewhat limited   Slope	0.63
	İ	Frost action	0.50	Depth to saturated zone	1.00	Depth to saturated zone	0.43
		Depth to saturated zone Depth to hard bedrock	0.43	Slope     Cutbanks cave	0.63	Depth to bedrock	0.29
72D: Towerville	80	  Very limited   Slope	1.00	  Very limited   Depth to hard	1.00	  Very limited   Slope	1.00
		   Frost action	0.50	bedrock   Slope	1.00	Depth to saturated zone	0.43
		Depth to saturated zone Depth to hard bedrock	0.43	Depth to   saturated zone   Cutbanks cave	0.10	Depth to bedrock	0.29
72E: Towerville	80	  Very limited   Slope	1.00	  Very limited   Depth to hard   bedrock	1.00	  Very limited   Slope	1.00
		   Frost action	0.50	Slope	1.00	Depth to saturated zone	0.43
		Depth to saturated zone Depth to hard bedrock	0.43	Depth to   saturated zone   Cutbanks cave	0.10	Depth to bedrock	0.29
72F: Towerville	80	  Very limited   Slope	1.00	  Very limited   Depth to hard   bedrock	1.00	  Very limited   Slope	1.00
		   Frost action 	0.50	Slope	1.00	Depth to saturated zone	0.43
		Depth to saturated zone Depth to hard bedrock	0.43	Depth to saturated zone Cutbanks cave	0.10	Depth to bedrock	0.29
73B: Gretor	80	    Very limited   Frost action	1.00	    Very limited   Depth to hard	1.00	    Very limited   Depth to	0.99
		Depth to	0.99	bedrock   Depth to	1.00	saturated zone Depth to bedrock	0.84
		saturated zone Depth to hard bedrock	0.84	saturated zone Cutbanks cave	0.10	   Gravel content	0.25
73C:		Bearder		 		   Droughty 	0.10
Gretor	80	  Very limited   Frost action	1.00	  Very limited   Depth to hard   bedrock	1.00	  Very limited   Depth to   saturated zone	0.99
		Depth to saturated zone	0.99	Depth to saturated zone	1.00	Depth to bedrock	0.84
		Depth to hard bedrock	0.84	Slope	0.63	Slope	0.63
		Slope 	0.63	Cutbanks cave	0.10	Gravel content Droughty	0.25

Table 17.—Roads and Streets, Shallow Excavations, and Lawns and Landscaping—Continued

Map symbol and soil name	Pct. of map unit	streets	ıd	Shallow excavati	Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	
74: Ashville	     80   	  Very limited   Depth to   saturated zone   Frost action	1.00	  Very limited   Depth to   saturated zone   Cutbanks cave	1.00	  Very limited   Depth to   saturated zone	1.00	
75: Alden	   85           	Very limited   Ponding   Depth to   saturated zone   Frost action   Low strength	  1.00  1.00    1.00  0.22	   Very limited   Ponding   Depth to   saturated zone   Cutbanks cave	  1.00  1.00    1.00	   Very limited   Ponding   Depth to   saturated zone	  1.00  1.00   	
76A: Orpark	   80             	Very limited   Frost action   Depth to   saturated zone   Depth to hard   bedrock   Low strength	  1.00    0.99    0.79    0.22	Very limited   Depth to hard   bedrock   Depth to   saturated zone   Cutbanks cave	1.00	  Very limited   Depth to   saturated zone   Depth to bedrock	0.99	
76B: Orpark	   80           	Very limited   Frost action	  1.00  0.99    0.79    0.22	Very limited   Depth to hard   bedrock   Depth to   saturated zone   Cutbanks cave	1.00	   Very limited   Depth to   saturated zone   Depth to bedrock	0.99	
76C: Orpark	   80             	Very limited   Frost action     Depth to   saturated zone   Depth to hard   bedrock   Slope   Low strength	  1.00  0.99    0.79    0.63  0.22	Very limited   Depth to hard   bedrock   Depth to   saturated zone   Slope   Cutbanks cave	1.00	   Very limited   Depth to   saturated zone   Depth to bedrock   Slope	0.99	
77A: Chippewa	   80       	  Very limited   Depth to   saturated zone   Frost action	1.00	  Very limited   Depth to   saturated zone   Dense layer   Cutbanks cave	  1.00    0.50  0.10	  Very limited   Depth to   saturated zone   Droughty	1.00	
78A: Hornell	   80           	Very limited   Frost action   Low strength   Depth to   saturated zone   Shrink-swell	  1.00    1.00  0.99    0.50	Very limited   Depth to   saturated zone   Too clayey   Depth to soft   bedrock   Cutbanks cave	  1.00    0.50  0.15    0.10	  Very limited   Depth to   saturated zone   Depth to bedrock	  0.99    0.16	

Table 17.—Roads and Streets, Shallow Excavations, and Lawns and Landscaping—Continued

Map symbol and soil name	Pct. of map unit	Local roads an	ıd	   Shallow excavati   	ons	Lawns and landsca	ping
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
78B:				 			
Hornell	80	  Very limited   Frost action	1.00	   Very limited   Depth to   saturated zone	1.00	Very limited Depth to saturated zone	0.99
	   	Low strength Depth to saturated zone	1.00	Too clayey Depth to soft bedrock	0.50	Depth to bedrock	0.16
	-	Shrink-swell	0.50	Cutbanks cave	0.10		
78C:	i	 	1	 			
Hornell	80	Very limited   Frost action	1.00	Very limited   Depth to   saturated zone	1.00	   Very limited   Depth to   saturated zone	0.99
	}	Low strength	1.00	Slope	0.63	Slope	0.63
		Depth to saturated zone	0.99	Too clayey	0.50	Depth to bedrock	!
		Slope     Shrink-swell	0.63	Depth to soft bedrock Cutbanks cave	0.15		
78D: Hornell	80	  Very limited   Slope	1.00	  Very limited	1.00	  Very limited	1.00
		Slope   Frost action 	1.00	Slope Depth to saturated zone	1.00	Slope Depth to saturated zone	0.99
	İ	Low strength	1.00	Too clayey	0.50	Depth to bedrock	0.16
		Depth to saturated zone Shrink-swell	0.50	Depth to soft bedrock Cutbanks cave	0.13		   
78F:							
Hornell	40	  Very limited   Slope	1.00	  Very limited   Slope	1.00	  Very limited   Slope	1.00
		Frost action	1.00	Depth to   saturated zone	1.00	Depth to saturated zone	0.99
		Low strength Depth to	1.00	Too clayey Depth to soft	0.50	Depth to bedrock	0.16
		saturated zone   Shrink-swell	0.50	bedrock   Cutbanks cave	0.10		
Hudson	35	  Very limited   Slope	1.00	  Very limited   Slope	1.00	  Very limited   Slope	1.00
		Low strength	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.56
		Depth to saturated zone	0.56	Too clayey	0.50		į į
		Shrink-swell Frost action	0.50	Cutbanks cave	0.50		į Į
79B:		 		 			
Mongaup	85	Somewhat limited   Depth to hard	0.71	  Very limited   Depth to hard	1.00	Somewhat limited Depth to bedrock	0.71
		bedrock   Frost action	0.50	bedrock   Cutbanks cave	0.10	Droughty	0.10
70 <i>a</i>						Gravel content	0.06
79C: Mongaup	   85	  Somewhat limited		  Very limited		  Somewhat limited	
		Depth to hard   bedrock	0.71	Depth to hard   bedrock	1.00	Depth to bedrock	0.71
		Slope   Frost action	0.63	Slope   Cutbanks cave	0.63	Slope	0.63
		FIOSC ACCION	0.50	Cutbaliks cave	0.10	Droughty Gravel content	0.06

Table 17.—Roads and Streets, Shallow Excavations, and Lawns and Landscaping—Continued

Map symbol and soil name	Pct. of map unit	streets	d	Shallow excavati	ons	Lawns and landsca	ping
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
79D: Mongaup	     85 	    Very limited   Slope	1.00	  Very limited   Depth to hard   bedrock	1.00	    Very limited   Slope	1.00
	i i	Depth to hard bedrock Frost action	0.71	Slope       Cutbanks cave	1.00	Depth to bedrock  Droughty	0.71
	į Į					Gravel content	0.06
79E: Mongaup	   85   	  Very limited   Slope 	1.00	  Very limited   Depth to hard   bedrock	1.00	  Very limited   Slope 	1.00
	į Į	Depth to hard bedrock	0.71	Slope	1.00	Depth to bedrock	į
	   	Frost action   	0.50	Cutbanks cave	0.10	Droughty Gravel content	0.10
79F: Mongaup	   85 	  Very limited   Slope	1.00	  Very limited   Depth to hard   bedrock	1.00	  Very limited   Slope	1.00
	   	Depth to hard bedrock	0.71	Slope	1.00	Depth to bedrock	0.71
	İ	Frost action	0.50	Cutbanks cave	0.10	Droughty Gravel content	0.10
80A: Fremont	     80   	  Very limited   Frost action     Low strength	  1.00    1.00	   Very limited   Depth to   saturated zone   Cutbanks cave	  1.00    0.10	  Very limited   Depth to   saturated zone	0.99
	   	Depth to   saturated zone	0.99	 		 	   
80B: Fremont	   80 	  Very limited   Frost action	1.00	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	0.99
	     	Low strength Depth to saturated zone	1.00  0.99 	Cutbanks cave	0.10		
80C: Fremont	   80 	  Very limited   Frost action 	1.00	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	0.99
	     	Low strength Depth to saturated zone Slope	1.00	Slope Cutbanks cave	0.63	Slope	0.63
81B: Varysburg	     85 	    Somewhat limited   Frost action	0.50	    Very limited   Depth to	1.00	    Somewhat limited   Depth to	0.10
	 	Depth to saturated zone	0.10	saturated zone Cutbanks cave	1.00	saturated zone Droughty	0.01
		sacuraced zone				   Gravel content	0.01

Table 17.—Roads and Streets, Shallow Excavations, and Lawns and Landscaping—Continued

Map symbol and soil name	Pct. of map unit	streets	đ	Shallow excavati    -	ons	Lawns and landsca	ping
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
81C: Varysburg	     85 	  Somewhat limited   Slope	      0.63	  Very limited   Depth to   saturated zone	1.00	  Somewhat limited   Slope	0.63
		   Frost action	0.50	Cutbanks cave	1.00	Depth to saturated zone	0.10
	ļ ļ	Depth to saturated zone	0.10	Slope	0.63	Droughty	0.01
81D:		 		 		Gravel content	0.01
Varysburg	   85     	   Very limited   Slope   Frost action     Depth to	  1.00  0.50    0.10	Very limited Slope Depth to saturated zone Cutbanks cave	  1.00  1.00    1.00	Very limited Slope Depth to saturated zone Droughty	  1.00  0.10    0.01
	   	saturated zone		 		   Gravel content 	0.01
81E: Varysburg	   85       	Very limited   Slope   Frost action   Depth to   saturated zone	  1.00  0.50    0.10	Very limited Slope Depth to saturated zone Cutbanks cave	  1.00  1.00      1.00	Very limited   Slope   Depth to   saturated zone   Droughty	  1.00  0.10    0.01
82F:	 	 		 		Gravel content	0.01
Rock outcrop	50	  Not rated 		  Not rated 		  Not rated 	
Manlius	30	Very limited   Slope 	1.00	Very limited   Depth to hard   bedrock	1.00	Very limited   Slope 	1.00
		Frost action Depth to hard bedrock	0.50	Slope   Dense layer	1.00	Droughty Depth to bedrock	0.38
				Cutbanks cave	0.10		
84B: Elko	   85     	Somewhat limited   Depth to   saturated zone   Shrink-swell   Frost action	  0.68    0.50  0.50	  Very limited   Depth to   saturated zone   Cutbanks cave	  1.00    0.10	Somewhat limited   Depth to   saturated zone   Droughty	0.68
84C: Elko	   85       	Somewhat limited   Depth to   saturated zone   Slope   Shrink-swell   Frost action	  0.68    0.63  0.50  0.50	   Very limited   Depth to   saturated zone   Slope   Cutbanks cave	  1.00    0.63  0.10	Somewhat limited Depth to saturated zone Slope Droughty	0.68
85B: Onoville	   85       	   Somewhat limited   Depth to   saturated zone   Shrink-swell   Frost action	    0.88    0.50  0.50	   Very limited   Depth to   saturated zone   Cutbanks cave	    1.00    0.10	   Somewhat limited   Depth to   saturated zone   Droughty	      0.88    0.01

Table 17.—Roads and Streets, Shallow Excavations, and Lawns and Landscaping—Continued

Map symbol and soil name	Pct. of map unit	streets	đ	Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
85C: Onoville	     85 	  Somewhat limited   Depth to	0.88	  Very limited   Depth to	1.00	  Somewhat limited   Depth to	0.88
		saturated zone Slope Shrink-swell Frost action	0.63  0.50  0.50	saturated zone Slope Cutbanks cave	0.63	saturated zone   Slope   Droughty 	0.63
85D: Onoville	85	    Very limited		    Very limited	   	    Very limited	   
		Slope Depth to saturated zone	1.00	Slope   Depth to   saturated zone	1.00	Slope   Depth to   saturated zone	1.00
		Shrink-swell   Frost action	0.50  0.50 	Cutbanks cave   	0.10   	Droughty   	0.01
86B: Eldred	85	  Somewhat limited   Shrink-swell	0.50	  Very limited   Depth to   saturated zone	1.00	  Somewhat limited   Depth to   saturated zone	0.43
		Frost action Depth to saturated zone	0.50	Cutbanks cave	0.10		   
86C: Eldred	85	  Somewhat limited   Slope	0.63	  Very limited   Depth to   saturated zone	1.00	  Somewhat limited   Slope	0.63
		   Shrink-swell 	0.50	Slope	0.63	Depth to saturated zone	0.43
		Frost action Depth to saturated zone	0.50  0.43	Cutbanks cave	0.10		
86D: Eldred	85	  Very limited   Slope	1.00	  Very limited   Slope	1.00	  Very limited   Slope	1.00
		Shrink-swell Frost action	0.50	Depth to saturated zone Cutbanks cave	1.00	Depth to saturated zone	0.43
		Depth to saturated zone	0.43	  -  -	   	  -  -	j I
87B: Shongo	   80 	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	1.00
		Frost action Shrink-swell	1.00	Cutbanks cave   	0.10	 	   
87C: Shongo	   80 	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	1.00
		Frost action Slope Shrink-swell	1.00  0.63  0.50	Slope   Cutbanks cave	0.63	Slope	0.63

Table 17.—Roads and Streets, Shallow Excavations, and Lawns and Landscaping—Continued

Map symbol and soil name	Pct. of map unit	streets	d	Shallow excavati   	ons	Lawns and landsca	aping
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
88A: Ivory	85	  Very limited   Frost action	1.00	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	0.99
	   	Low strength Depth to	0.99	Too clayey Cutbanks cave	0.50	Large stones content	0.03
		saturated zone Shrink-swell	0.50	 			
88B: Ivory	   85 	  Very limited   Frost action 	1.00	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	0.99
		Low strength Depth to	1.00	Too clayey Cutbanks cave	0.50	Large stones content	0.03
		saturated zone   Shrink-swell	0.50				
88C: Ivory	85	  Very limited   Frost action	1.00	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	0.99
		Low strength Depth to saturated zone Slope	1.00  0.99 	Slope   Too clayey     Cutbanks cave	0.63  0.50 	Slope Large stones content	0.63
88D:	ļ	Shrink-swell	0.50				
Ivory	85     	Very limited   Slope   Frost action	1.00	Very limited   Slope   Depth to   saturated zone	  1.00  1.00	Very limited   Slope   Depth to   saturated zone	1.00
		Low strength Depth to	1.00    0.99	Too clayey Cutbanks cave	0.50	Large stones content	0.03
	   	saturated zone Shrink-swell	0.50	 		 	 
89B: Portville	80	  Very limited   Depth to   saturated zone   Frost action	  1.00    1.00	  Very limited   Depth to   saturated zone   Cutbanks cave	    1.00    1.00	  Very limited   Depth to   saturated zone	1.00
89C:	į Į	Shrink-swell	0.50				
Portville	80	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	1.00
		Frost action   Slope   Shrink-swell	1.00  0.63  0.50	Cutbanks cave   Slope 	1.00  0.63 	Slope   	0.63
90A: Brinkerton	85	Very limited   Depth to   saturated zone   Frost action	  1.00    1.00	  Very limited   Depth to   saturated zone   Cutbanks cave	  1.00    0.10	  Very limited   Depth to   saturated zone	1.00
	į į	Shrink-swell Low strength	0.50				

Table 17.—Roads and Streets, Shallow Excavations, and Lawns and Landscaping—Continued

Map symbol and soil name	Pct. of map unit	Local roads an	d	   Shallow excavati   	ons	Lawns and landsca	ping
	 	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
90B: Brinkerton	   85       	Very limited Depth to saturated zone Frost action Shrink-swell Low strength	  1.00  1.00  0.50  0.22	  Very limited   Depth to   saturated zone   Cutbanks cave	1.00	  Very limited   Depth to   saturated zone	1.00
91A:							
Palms	85             	Very limited Ponding Depth to saturated zone Subsidence Frost action	  1.00  1.00    1.00    1.00	Very limited   Ponding   Depth to   saturated zone   Cutbanks cave   Organic matter   content	  1.00  1.00    1.00    1.00	Very limited   Ponding   Organic matter   content   Depth to   saturated zone	1.00
92: Carlisle	     85   	  Very limited   Ponding   Depth to   saturated zone	1.00	  Very limited   Ponding   Depth to   saturated zone	    1.00  1.00	  Very limited   Ponding   Organic matter   content	1.00
	   	Subsidence Frost action	1.00	Organic matter content Cutbanks cave	0.10	Depth to saturated zone	1.00
93: Saprists, inundated-	   85           	Very limited Ponding Depth to saturated zone Subsidence Frost action	1.00	Very limited   Ponding   Depth to   saturated zone   Cutbanks cave   Organic matter   content	  1.00  1.00    1.00    1.00	Very limited   Ponding   Organic matter   content   Depth to   saturated zone	1.00
94B: Frewsburg	     80 	  Very limited   Frost action	1.00	  Very limited   Depth to hard	1.00	  Very limited   Depth to	0.99
	       	Depth to saturated zone Depth to hard bedrock	0.99	bedrock   Depth to   saturated zone   Cutbanks cave	  1.00    0.10	saturated zone Depth to bedrock	0.01
94C: Frewsburg	     80 	  Very limited   Frost action	1.00	    Very limited   Depth to hard   bedrock	1.00	  Very limited   Depth to   saturated zone	0.99
	       	Depth to saturated zone Slope Depth to hard bedrock	0.99	Depth to   saturated zone   Slope   Cutbanks cave	1.00    0.63  0.10	Slope Depth to bedrock	0.63
95B: Mandy	     85 	  Somewhat limited   Frost action	0.50	    Very limited   Depth to hard   bedrock	1.00	    Somewhat limited   Droughty	0.92
	į Į	Depth to hard bedrock	0.20	Cutbanks cave	0.10	Depth to bedrock	0.20

Table 17.—Roads and Streets, Shallow Excavations, and Lawns and Landscaping—Continued

Map symbol and soil name	Pct. of map unit	Local roads an	d	Shallow excavati	ons	Lawns and landsca	ping
	   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
95C: Mandy	     85 	    Somewhat limited   Slope	0.63	  Very limited   Depth to hard	1.00	  Somewhat limited   Droughty	0.92
	     	   Frost action   Depth to hard   bedrock	0.50	bedrock   Slope   Cutbanks cave	0.63	   Slope   Depth to bedrock 	0.63
95D:	   					Gravel content	0.06
Mandy	85   	Very limited   Slope	1.00	Very limited   Depth to hard   bedrock	1.00	Very limited   Slope	1.00
	 	Frost action Depth to hard bedrock	0.50	Slope   Cutbanks cave 	1.00	Droughty   Depth to bedrock	į
95E:						Gravel content	0.06
Mandy	85   	Very limited   Slope	1.00	Very limited   Depth to hard   bedrock	1.00	Very limited   Slope	1.00
		Frost action Depth to hard bedrock	0.50	Slope   Cutbanks cave 	1.00	Droughty   Depth to bedrock     Gravel content	0.92
95F: Mandy	       85	      Very limited		      Very limited		Graver content      Very limited	
mandy	83	Slope   Frost action	1.00	Depth to hard   bedrock   Slope	1.00	Slope   Droughty	1.00
		Depth to hard bedrock	0.20	Cutbanks cave	0.10	Depth to bedrock     Gravel content	!
96B: Carrollton	80	    Somewhat limited   Frost action	0.50	    Very limited   Depth to hard	1.00	    Somewhat limited   Depth to bedrock	0.46
	   	Depth to hard bedrock	0.46	bedrock Depth to saturated zone	0.99	Gravel content	0.01
96C:		      Somewhat limited		Cutbanks cave	0.10	   	   
Carrollton	80   	Slope	0.63	Very limited   Depth to hard   bedrock	1.00	Slope	0.63
		Frost action Depth to hard bedrock	0.50	Slope   Cutbanks cave 	0.63	Depth to bedrock   Gravel content 	0.46
96D: Carrollton	     80 	  Very limited   Slope 	1.00	  Very limited   Depth to hard   bedrock	1.00	  Very limited   Slope 	1.00
		Frost action Depth to hard bedrock	0.50	Slope   Cutbanks cave 	1.00	Depth to bedrock Gravel content	0.46

Table 17.—Roads and Streets, Shallow Excavations, and Lawns and Landscaping—Continued

Map symbol and soil name	Pct. of map unit	streets	ıd	Shallow excavations		Lawns and landscaping	
	ļ	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
96E: Carrollton	     80 	  Very limited   Slope	1.00	  Very limited   Depth to hard   bedrock	1.00	    Very limited   Slope	1.00
		Frost action Depth to hard bedrock	0.50	Slope   Cutbanks cave 	1.00	Depth to bedrock Gravel content	0.46
96F: Carrollton	80	  Very limited   Slope	1.00	! -	1.00	  Very limited   Slope	1.00
		Frost action Depth to hard bedrock	0.50	bedrock   Slope   Cutbanks cave	1.00	Depth to bedrock Gravel content	0.46
97B: Kinzua	     85   	  Somewhat limited   Frost action	0.50	   Somewhat limited   Depth to   saturated zone   Cutbanks cave	0.15	  Somewhat limited   Gravel content	0.01
97C: Kinzua	     85     	  Somewhat limited   Slope   Frost action	0.63	   Somewhat limited   Slope   Depth to   saturated zone   Cutbanks cave	  0.63  0.15    0.10	  Somewhat limited   Slope   Gravel content	    0.63  0.01
97D: Kinzua	     85 	  Very limited   Slope   Frost action	1.00	  Very limited   Slope   Cutbanks cave	1.00	  Very limited   Slope   Gravel content	1.00
97E: Kinzua	     85 	  Very limited   Slope   Frost action	1.00	   Very limited   Slope   Cutbanks cave	  1.00  0.10	  Very limited   Slope   Gravel content	1.00
97F: Kinzua	     85 	  Very limited   Slope   Frost action	1.00	  Very limited   Slope   Cutbanks cave	1.00	  Very limited   Slope   Gravel content	1.00
98D: Kinzua	     85 	  Very limited   Slope   Frost action	1.00	  Very limited   Slope   Cutbanks cave	1.00	  Very limited   Slope   Gravel content	1.00
98E: Kinzua	   85 	  Very limited   Slope   Frost action	1.00	: -	1.00	  Very limited   Slope   Gravel content	1.00
99B: Buchanan	     85 	  Somewhat limited   Shrink-swell	0.50	saturated zone	1.00	  Somewhat limited   Depth to   saturated zone	0.35
		Frost action   Depth to   saturated zone	0.50	Cutbanks cave	1.00		

Table 17.—Roads and Streets, Shallow Excavations, and Lawns and Landscaping—Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets	đ	   Shallow excavati   	ons	Lawns and landsca	ping
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
99C: Buchanan	     85 	  Somewhat limited   Slope	      0.63	  Very limited   Depth to   saturated zone	      1.00	  Somewhat limited   Slope	0.63
		   Shrink-swell 	0.50	Cutbanks cave	1.00	Depth to saturated zone	0.35
	   	Frost action   Depth to   saturated zone	0.50	Slope	0.63		
99D: Buchanan	   85           	   Very limited   Slope   Shrink-swell     Frost action   Depth to   saturated zone	  1.00  0.50    0.50  0.35	  Very limited   Slope   Depth to   saturated zone   Cutbanks cave	  1.00  1.00      1.00	  Very limited   Slope   Depth to   saturated zone	  1.00  0.35 
100: Udorthents	     85	    Not rated 		    Not rated 		  Not rated	
101: Udorthents, refuse substratum	       90	    Not rated		    Not rated	     	    Not rated	
102C: Mandy	   40 	  Somewhat limited   Frost action	    0.50	  Very limited   Depth to hard   bedrock	1.00	  Somewhat limited   Droughty	0.92
	   	Depth to hard bedrock	0.20	Cutbanks cave	0.10	Depth to bedrock Gravel content	0.20
	İ	510pc		519pc   		Slope	0.04
Rock outcrop	35	Not rated	<u> </u> 	Not rated		Not rated	
103C: Knapp Creek	   40     	Somewhat limited   Frost action   Slope	  0.50  0.04 	Very limited Cutbanks cave Slope Depth to hard bedrock	  1.00  0.04  0.01	Somewhat limited   Slope   Droughty	  0.04  0.02
Rock outcrop	   35 	  Not rated 		  Not rated 		  Not rated 	
104B: Flatiron	     80 	  Somewhat limited   Frost action	    0.50	  Very limited   Cutbanks cave	1.00	  Somewhat limited   Droughty	0.02
104C: Flatiron	   80   	  Somewhat limited   Slope   Frost action	  0.63  0.50	  Very limited   Cutbanks cave   Slope	    1.00  0.63	  Somewhat limited   Slope   Droughty	  0.63  0.02
104D: Flatiron	   80   	  Very limited   Slope   Frost action	    1.00  0.50	  Very limited   Slope   Cutbanks cave	  1.00  1.00	  Very limited   Slope   Droughty	    1.00  0.02

Table 17.—Roads and Streets, Shallow Excavations, and Lawns and Landscaping—Continued

Map symbol and soil name	Pct. of map unit	streets	ıd	Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
104E: Flatiron	80	  Very limited   Slope   Frost action	1.00	  Very limited   Slope   Cutbanks cave	1.00	  Very limited   Slope   Droughty	1.00
108D: Hartleton	   85       	  Very limited   Slope   Frost action	1.00	   Very limited   Slope   Cutbanks cave   Depth to hard   bedrock	  1.00  0.10  0.01	! -	  1.00  0.10  0.01
108E: Hartleton	   85     	   Very limited   Slope   Frost action	1.00	Very limited   Slope   Cutbanks cave   Depth to hard   bedrock	1.00  0.10  0.01	! -	  1.00  0.10  0.01
108F: Hartleton	   85     	  Very limited   Slope   Frost action 	1.00	  Very limited   Slope   Cutbanks cave   Depth to hard   bedrock	  1.00  0.10  0.01	  Very limited   Slope   Droughty   Large stones   content	  1.00  0.10  0.01
131: Lamson	     85   	   Very limited   Depth to   saturated zone   Frost action	1.00	   Very limited   Depth to   saturated zone   Cutbanks cave	1.00	  Very limited   Depth to   saturated zone	1.00
132B: Wiscoy	   80     	  Very limited   Depth to   saturated zone   Frost action	1.00	  Very limited   Depth to   saturated zone   Dense layer   Cutbanks cave	  1.00  0.50  0.10	  Very limited   Depth to   saturated zone   Droughty	1.00
132C: Wiscoy	     80       	   Very limited   Depth to   saturated zone   Frost action   Slope	    1.00    1.00  0.63	Very limited   Depth to   saturated zone   Slope   Dense layer   Cutbanks cave	  1.00    0.63  0.50  0.10	  Very limited   Depth to   saturated zone   Droughty   Slope	1.00
135C: Hudson	     85       	  Very limited   Low strength   Slope     Depth to	1.00	  Very limited   Depth to   saturated zone   Slope     Too clayey	0.63	  Somewhat limited   Slope   Depth to   saturated zone	0.63
	     	saturated zone Shrink-swell Frost action	0.50	Cutbanks cave	0.50		     

Table 17.—Roads and Streets, Shallow Excavations, and Lawns and Landscaping—Continued

Map symbol and soil name	Pct. of map unit	streets	ıd	Shallow excavati   	Lawns and landscaping		
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Valu
135D:		 		 		 	
Hudson	85	Very limited	İ	Very limited		Very limited	į
		Slope Low strength	1.00  1.00	Slope   Depth to	1.00  1.00	Slope   Depth to	1.00
		Donath to		saturated zone		saturated zone	
		Depth to saturated zone	0.56	Too clayey 	0.50	 	
	į	Shrink-swell	0.50	Cutbanks cave	0.50		į
		Frost action	0.50				
.35E:	}	 		 		 	
Hudson	85	Very limited	į	Very limited	į	Very limited	į
		Slope	1.00	Slope	1.00	Slope	1.00
	}	Low strength	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.56
		Depth to	0.56	Too clayey	0.50		
		saturated zone					
		Shrink-swell   Frost action	0.50	Cutbanks cave	0.50	 	
		Flost accion					
40D:	0-		Ì	ļ 	į		į
Dunkirk	85	Very limited   Slope	1.00	Very limited   Slope	1.00	Very limited   Slope	1.00
		Frost action	1.00	Cutbanks cave	0.50	blobe	1.00
	į	Low strength	0.22	į	į	ļ	į
40E:		]		]		]	
Dunkirk	85	  Very limited	ì	  Very limited		  Very limited	
	į	Slope	1.00	Slope	1.00	Slope	1.00
		Frost action   Low strength	1.00	Cutbanks cave	0.50	 	
		How strength					
85C: Onoville	0.5	  Somewhat limited		 		  Somewhat limited	
OHOVIIIe	83	Depth to	0.88	Very limited   Depth to	1.00	Depth to	0.88
		saturated zone		saturated zone		saturated zone	
		Slope	0.63	Slope	0.63	Slope	0.63
		Shrink-swell   Frost action	0.50	Cutbanks cave	0.10	Droughty	0.01
	}	Frost action		 		 	
85D:	0-		Ì	ļ 	į		į
Onoville	85	Very limited   Slope	1.00	Very limited   Slope	1.00	Very limited   Slope	1.00
		Depth to	0.88	Depth to	1.00	Depth to	0.88
		saturated zone		saturated zone		saturated zone	
		Shrink-swell   Frost action	0.50	Cutbanks cave	0.10	Droughty	0.01
87B:	80	  Town limited	ļ	  Town limited		  Town limited	
Shongo	80	Very limited   Depth to	1.00	Very limited   Depth to	1.00	Very limited   Depth to	1.00
	İ	saturated zone		saturated zone		saturated zone	
		Frost action   Shrink-swell	1.00	Cutbanks cave	0.10		
		SHITHK-SWEIT	0.50	 		 	
87C:	22				İ		į
Shongo	80	Very limited   Depth to	1.00	Very limited   Depth to	1.00	Very limited   Depth to	1.00
		saturated zone		saturated zone		saturated zone	00
	į	Frost action	1.00	Slope	0.63	Slope	0.63
		Slope	0.63	Cutbanks cave	0.10		
		Shrink-swell	0.50		1		

Table 17.—Roads and Streets, Shallow Excavations, and Lawns and Landscaping—Continued

Map symbol and soil name	Pct. of map unit	streets	d	Shallow excavations		Lawns and landscaping		
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	
188B: Cavode	     85 	  Very limited   Frost action	      1.00	saturated zone	      1.00	  Very limited   Depth to   saturated zone	0.99	
	       	Low strength Depth to saturated zone Shrink-swell	1.00	Too clayey   Cutbanks cave   	0.50  0.10 			
188C:	İ		İ		İ		j	
Cavode	85   	Very limited   Frost action 	1.00	Very limited   Depth to   saturated zone	1.00	Very limited   Depth to   saturated zone	0.99	
	   	Low strength Depth to saturated zone	1.00	Slope   Too clayey 	0.63	Slope   	0.63	
	į Į	Slope   Shrink-swell	0.63	Cutbanks cave	0.10	 	   	
188D: Cavode	85	    Very limited		    Very limited		    Very limited		
	   	Slope   Frost action 	1.00  1.00	Slope Depth to saturated zone	1.00	Slope Depth to saturated zone	1.00	
	     	Low strength Depth to saturated zone Shrink-swell	1.00	Too clayey Cutbanks cave	0.50  0.10 			
189B:	 			 				
Portville	80	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	1.00	
		Frost action Shrink-swell	1.00	Cutbanks cave	1.00			
189C: Portville	80	    Very limited		    Very limited		    Very limited		
		Depth to saturated zone Frost action	1.00	Depth to saturated zone Cutbanks cave	1.00	Depth to saturated zone	1.00	
		Slope   Shrink-swell	0.63	Slope	0.63			
195C:	 					 		
Mandy	85   	Somewhat limited   Frost action	0.50	Very limited   Depth to hard   bedrock	1.00	Somewhat limited   Droughty 	0.92	
		Depth to hard bedrock	0.20	Cutbanks cave	0.10	Depth to bedrock	0.20	
	     	Slope   	0.04	Slope   	0.04   	Slope   Gravel content   Large stones   content	0.04  0.04  0.01	

Table 17.—Roads and Streets, Shallow Excavations, and Lawns and Landscaping—Continued

Map symbol and soil name	Pct. of map unit	streets	d	Shallow excavati   	ons	Lawns and landsca	ping
	unit	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
195D: Mandy	   85 	  Very limited   Slope	1.00	  Very limited   Depth to hard   bedrock	1.00	  Very limited   Slope	1.00
		Frost action Depth to hard bedrock	0.50	Slope   Cutbanks cave	1.00	Droughty Depth to bedrock	į
						Gravel content Large stones content	0.04
195E: Mandy	85	  Very limited   Slope	1.00	    Very limited   Depth to hard   bedrock	1.00	  Very limited   Slope	1.00
		Frost action   Depth to hard   bedrock	0.50	Slope   Cutbanks cave	1.00	Droughty Depth to bedrock	0.92
		25415511				Gravel content Large stones content	0.04
199C: Buchanan	   85 	  Somewhat limited   Slope	0.63	  Very limited   Depth to   saturated zone	1.00	  Somewhat limited   Slope	0.63
		Shrink-swell	0.50	Cutbanks cave	1.00	Depth to saturated zone	0.35
		Frost action   Depth to   saturated zone	0.50	Slope   	0.63		
199D: Buchanan	   85   	  Very limited   Slope   Shrink-swell	1.00	  Very limited   Slope   Depth to   saturated zone	1.00	  Very limited   Slope   Depth to   saturated zone	1.00
		Frost action   Depth to   saturated zone	0.50	Cutbanks cave	1.00		
289B: Ceres	   85   	Somewhat limited   Frost action	    0.50   	Somewhat limited   Depth to hard   bedrock   Cutbanks cave	  0.88    0.10	Somewhat limited   Gravel content	0.07
289C: Ceres	85	  Somewhat limited   Slope	0.63	  Somewhat limited   Depth to hard   bedrock	0.88	  Somewhat limited   Slope	0.63
		   Frost action 	0.50	Slope   Cutbanks cave	0.63	Gravel content	0.07
289D: Ceres	   85   	  Very limited   Slope   Frost action	  1.00  0.50	  Very limited   Slope   Depth to hard   bedrock   Cutbanks cave	  1.00  0.88    0.10	  Very limited   Slope   Gravel content	1.00

Table 17.—Roads and Streets, Shallow Excavations, and Lawns and Landscaping—Continued

Map symbol and soil name	Pct. of map	streets	ıd	Shallow excavati	ons	Lawns and landsca 	ping
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
289E: Ceres	85	  Very limited   Slope   Frost action	1.00	  Very limited   Slope   Depth to hard   bedrock   Cutbanks cave	  1.00  0.88    0.10	  Very limited   Slope   Gravel content	1.00
289F: Ceres	85   	  Very limited   Slope   Frost action 	1.00	  Very limited   Slope   Depth to hard   bedrock   Cutbanks cave	  1.00  0.88    0.10	  Very limited   Slope   Gravel content 	  1.00  0.07
400: Wakeville	80	Very limited   Frost action	  1.00    1.00  0.99	   Very limited   Depth to   saturated zone   Cutbanks cave   Flooding	  1.00    1.00  0.60	  Very limited   Depth to   saturated zone   Flooding	0.99
496B: Gilpin	85	  Somewhat limited   Frost action     Depth to hard   bedrock	0.50	Very limited   Depth to hard   bedrock   Depth to   saturated zone   Cutbanks cave	  1.00    0.99    0.10	  Somewhat limited   Depth to bedrock     Gravel content	0.10
496C: Gilpin	85	Somewhat limited   Slope   Frost action   Depth to hard   bedrock	      0.63    0.50  0.10	  Very limited   Depth to hard   bedrock   Slope   Cutbanks cave	    1.00    0.63  0.10	  Somewhat limited   Slope   Depth to bedrock   Gravel content	0.63
496D: Gilpin	85	   Very limited   Slope   Frost action   Depth to hard   bedrock	    1.00    0.50  0.10	   Very limited   Depth to hard   bedrock   Slope   Cutbanks cave	    1.00    1.00  0.10	Very limited   Slope   Depth to bedrock   Gravel content	    1.00    0.10  0.01
496E: Gilpin	85	  Very limited   Slope   Frost action   Depth to hard   bedrock	  1.00    0.50  0.10	  Very limited   Depth to hard   bedrock   Slope   Cutbanks cave	    1.00    1.00  0.10	  Very limited   Slope     Depth to bedrock   Gravel content	  1.00    0.10  0.01
496F: Gilpin	85	   Very limited   Slope   Frost action   Depth to hard   bedrock	  1.00    0.50  0.10	   Very limited   Depth to hard   bedrock   Slope   Cutbanks cave	      1.00  1.00  0.10	   Very limited   Slope     Depth to bedrock   Gravel content	    1.00    0.10  0.01

Table 17.—Roads and Streets, Shallow Excavations, and Lawns and Landscaping—Continued

Map symbol and soil name	Pct. of map unit	Local roads an streets	đ	Shallow excavati   	ons	Lawns and landsca	ping
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
497D: Rayne	       80	 				 	
-	   	Slope Frost action	1.00	Slope   Cutbanks cave	1.00	<u> </u>	1.00
497E: Rayne	   80 	  Very limited   Slope   Frost action	    1.00  0.50	  Very limited   Slope   Cutbanks cave	1.00		1.00
497F: Rayne	     80 	  Very limited   Slope   Frost action	    1.00  0.50	  Very limited   Slope   Cutbanks cave	1.00		1.00
498E: Rayne	     80 	Very limited Slope Frost action	    1.00  0.50	  Very limited   Slope   Cutbanks cave	    1.00  0.10	<u> </u>	1.00
800: Holderton	     80     	  Very limited   Frost action   Flooding   Depth to   saturated zone	      1.00    1.00  0.99	  Very limited   Depth to   saturated zone   Cutbanks cave   Flooding	      1.00    1.00  0.60	  Very limited   Depth to   saturated zone   Flooding	0.99
PG: Pits, gravel	     85	    Not rated		    Not rated		    Not rated	
Ur: Urban land	     85 	    Not rated 	     	    Not rated 		    Not rated 	
W: Water	    100	    Not rated	   	    Not rated		    Not rated	

Table 18.—Sewage Disposal

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of	Septic tank absorption fiel	ds	Sewage lagoons	
	map				
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value
_					
1: Udifluvents	   40	  Very limited		  Very limited	
odiliavenes	10	Flooding	1.00	Flooding	1.00
	i	Seepage	1.00	Seepage	1.00
	İ	Filtering	1.00	Depth to	0.71
		capacity		saturated zone	
		Depth to	0.33		
		saturated zone		]	
Fluvaquents	35	  Very limited		  Very limited	
		Flooding	1.00	Flooding	1.00
	İ	Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone	
	ļ	Seepage	1.00	Seepage	1.00
	 	Filtering   capacity	1.00		
		Cupucity			
2:	į	İ	į		į
Hamlin	85	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
	 	Restricted permeability	0.31	Seepage	0.50
	¦	Depth to	0.17	Depth to	0.17
	į	saturated zone	į	saturated zone	į
2					
3: Tioga	   85	  Very limited		  Very limited	
3		Flooding	1.00	Flooding	1.00
	İ	Seepage	0.90	Seepage	1.00
	[	Depth to	0.17	Depth to	0.17
		saturated zone		saturated zone	
4:	 	 			
Teel	85	  Very limited	i	  Very limited	i
		Flooding	1.00	Flooding	1.00
		Depth to	0.80	Depth to	1.00
		saturated zone Restricted	0.31	saturated zone	0.99
	 	permeability		Seepage 	0.99
	į	<u> </u>	į		į
5:		 		77 7445-3	
Wayland	85	Very limited   Flooding	1.00	Very limited   Flooding	1.00
		Restricted	1.00	Depth to	1.00
	i	permeability		saturated zone	
	j	Depth to	1.00	İ	İ
		saturated zone			
6A:	 	 		[ ]	
Wyalusing	   85	  Very limited		  Very limited	
<u>.</u> <u></u>		Flooding	1.00	Flooding	1.00
	İ	Depth to	1.00	Seepage	1.00
		saturated zone			
		Seepage	0.90	Depth to	1.00
		beepage	0.30	: =	
	   	Seepage     Restricted	0.30	saturated zone	

Table 18.—Sewage Disposal—Continued

Map symbol and soil name	Pct. of map unit	absorption fiel	ds	Sewage lagoons	
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value
7A:					
Philo	85   	Very limited   Flooding   Depth to	1.00	Very limited   Flooding   Depth to	1.00
	   	saturated zone Restricted permeability	0.31	saturated zone Seepage	1.00
8:		 		 	
Middlebury	85	Very limited   Flooding	1.00	Very limited   Flooding	1.00
	 	Seepage	0.90	Depth to	1.00
	İ		į	saturated zone	İ
		Depth to saturated zone	0.80	Seepage	1.00
		Restricted	0.31		
		permeability			
9: Pawling	   85	  Very limited	İ	  Very limited	İ
1 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	03	Flooding	1.00	Flooding	1.00
		Seepage	0.90	Depth to	1.00
	 	Depth to	0.80	saturated zone Seepage	1.00
		saturated zone		beepage	
	j i	Restricted permeability	0.31	j I	
10:					
Atkins	85	  Very limited		  Very limited	
	ļ	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
	 	Restricted Zone	0.57	Seepage	1.00
		permeability			
11B:	0.5			 	
Ischua	85 	Somewhat limited   Depth to	0.80	Very limited   Depth to hard	1.00
		saturated zone Depth to bedrock	0.75	bedrock Depth to	1.00
		Depth to bedrock		saturated zone	
		Restricted permeability	0.68	Slope	0.92
		permeability		Seepage	0.50
11C:					
Ischua	85 	Somewhat limited   Depth to	0.80	Very limited   Depth to hard	1.00
	İ	saturated zone	į	bedrock	İ
		I Branch L. Landau Anna alla	10 75		1.00
		Depth to bedrock	0.75	Slope	:
	   	Restricted permeability	0.75	Slope   Depth to   saturated zone	1.00

Table 18.—Sewage Disposal—Continued

Map symbol and soil name	Pct. of map	absorption fiel	.ds	Sewage lagoons	1
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value
11D:	 				
Ischua	85 	Very limited   Slope	1.00	Very limited   Depth to hard   bedrock	1.00
	į	Depth to	0.80	Slope	1.00
	 	saturated zone Depth to bedrock	0.75	Depth to	1.00
	   	Restricted   permeability	0.68	saturated zone   Seepage	0.50
11E:	<u> </u>				
Ischua	85   	Very limited   Slope 	1.00	Very limited   Depth to hard   bedrock	1.00
	į	Depth to saturated zone	0.80	Slope	1.00
	   	Depth to bedrock	0.75	Depth to saturated zone	1.00
	<u> </u> 	Restricted permeability	0.68	Seepage	0.50
11F:	 				
Ischua	85 	Very limited   Slope	1.00	Very limited   Depth to hard   bedrock	1.00
		Depth to	0.80	Slope	1.00
	   	saturated zone   Depth to bedrock	0.75	Depth to saturated zone	1.00
	   	Restricted permeability	0.68	Seepage	0.50
12B: Franklinville	   85 	  Somewhat limited   Restricted   permeability	0.49	  Somewhat limited   Slope	0.92
	į	Depth to	0.17	Seepage	0.50
	     	saturated zone		Depth to saturated zone	0.17
12C: Franklinville	     85	    Somewhat limited		    Very limited	
Tunktinville	03   	Restricted   permeability	0.49	Slope	1.00
	į i	Slope Depth to	0.20	Seepage Depth to	0.50
	   	Depth to   saturated zone 		Depth to   saturated zone 	
12D: Franklinville	85	  Very limited		  Very limited	į Į
	     	Slope Restricted permeability	1.00	Slope   Seepage 	1.00
12E: Franklinville	     85	    Very limited		    Very limited	
1 1 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	   	Slope   Restricted	1.00	Slope   Seepage	1.00
	 	permeability		<u> </u> 	

Table 18.—Sewage Disposal—Continued

Map symbol and soil name	Pct. of map unit	absorption fiel	ds	Sewage lagoons	
	 	Rating class and limiting features	Value	Rating class and limiting features	Value
14B: Hornellsville	   85       	Very limited Restricted permeability Depth to saturated zone Depth to bedrock	  1.00    1.00    0.75	Very limited Depth to soft bedrock Depth to saturated zone Slope	  1.00    1.00    0.92
14C: Hornellsville	   85             	Very limited Restricted permeability Depth to saturated zone Depth to bedrock Slope	  1.00    1.00    0.75    0.20	Very limited Depth to soft bedrock Slope Depth to saturated zone	1.00
15B: Willdin	   85           	Somewhat limited Depth to saturated zone Depth to dense material Restricted permeability	  0.89    0.85    0.31	Somewhat limited   Depth to   saturated zone   Slope   Seepage	0.99
15C: Willdin	   85         	Somewhat limited Depth to saturated zone Depth to dense material Restricted permeability Slope	0.89	Very limited   Slope     Depth to   saturated zone   Seepage	1.00
15D: Willdin	   85             	Very limited   Slope   Depth to   saturated zone   Depth to dense   material   Restricted   permeability	  1.00  0.89    0.85    0.31	   Very limited   Slope   Depth to   saturated zone   Seepage	  1.00  0.99    0.50
16A: Almond	   80       	Very limited Depth to saturated zone Restricted permeability	  1.00    0.49	Very limited Depth to saturated zone Seepage	  1.00    0.27
16B: Almond	   80         	   Very limited   Depth to   saturated zone   Restricted   permeability	  1.00    0.49 	Very limited   Depth to   saturated zone   Slope   Seepage	  1.00    0.92    0.27

Table 18.—Sewage Disposal—Continued

Map symbol and soil name	Pct. of map	Septic tank absorption fiel	ds	Sewage lagoons	
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value
16C: Almond	   80     	Very limited Depth to saturated zone Restricted permeability Slope	1.00	Very limited   Slope     Depth to   saturated zone   Seepage	  1.00    1.00    0.27
17B: Salamanca	     80       	   Somewhat limited   Restricted   permeability   Depth to   saturated zone	    0.84    0.80	   Very limited   Depth to   saturated zone   Slope     Seepage	  1.00    0.68    0.50
17C: Salamanca	   80       	Somewhat limited Restricted permeability Depth to saturated zone Slope	0.84	Very limited   Slope     Depth to   saturated zone   Seepage	1.00
17D: Salamanca	   80     	Very limited Slope Restricted permeability Depth to saturated zone	1.00	Very limited Slope Depth to saturated zone Seepage	1.00
17E: Salamanca	     80     	   Very limited   Slope   Restricted   permeability   Depth to   saturated zone	    1.00  0.84    0.80	   Very limited   Slope   Depth to   saturated zone   Seepage	    1.00  1.00      0.50
18A: Pope	     85   	  Very limited   Flooding	1.00	  Very limited   Flooding   Seepage	1.00
19A: Olean	   85       	Somewhat limited Seepage Depth to saturated zone Restricted permeability	  0.90  0.80    0.49	   Very limited   Seepage   Depth to   saturated zone	  1.00  1.00 
19B: Olean	   85         	Somewhat limited   Seepage   Depth to   saturated zone   Restricted   permeability	0.90	  Very limited   Seepage   Depth to   saturated zone   Slope	  1.00  1.00      0.32

Table 18.—Sewage Disposal—Continued

Map symbol and soil name	Pct. of map	absorption fiel	.ds	Sewage lagoons	ı
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value
20A: Unadilla	     85     	  Somewhat limited   Seepage   Restricted   permeability	0.90	  Very limited   Seepage 	1.00
20B: Unadilla	   85     	Somewhat limited   Seepage   Restricted   permeability	0.90	   Very limited   Seepage   Slope	1.00
20C: Unadilla	   85     	Somewhat limited  Seepage  Restricted   permeability  Slope	0.90	  Very limited   Slope   Seepage 	1.00
20D: Unadilla	   85       	   Very limited   Slope   Seepage   Restricted   permeability	1.00  0.90  0.31	  Very limited   Slope   Seepage	1.00
22A: Allard	   85     	  Somewhat limited   Seepage   Restricted   permeability	0.90	  Very limited   Seepage 	1.00
22B: Allard	   85     	Somewhat limited   Seepage   Restricted   permeability	0.90	  Very limited   Seepage   Slope	1.00
25A: Chenango	     85 	  Somewhat limited   Seepage	0.90	  Very limited   Seepage	1.00
25B: Chenango	   85   	  Somewhat limited   Seepage	0.90	  Very limited   Seepage   Slope	1.00
25C: Chenango	     85   	  Somewhat limited   Seepage   Slope	0.90	  Very limited   Slope   Seepage	1.00
25D: Chenango	   85   	  Very limited   Slope   Seepage	1.00	  Very limited   Slope   Seepage	1.00
25E: Chenango	   80   	  Very limited   Slope   Seepage	1.00	  Very limited   Slope   Seepage	1.00

Table 18.—Sewage Disposal—Continued

Map symbol and soil name	Pct. of map	absorption fiel	ds	Sewage lagoons	
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value
25F: Chenango	   80   	  Very limited   Slope   Seepage	1.00	  Very limited   Slope   Seepage	1.00
26A: Chenango, fan	   80     	  Somewhat limited   Seepage   Flooding   Depth to   saturated zone	0.90	  Very limited   Seepage   Flooding   Depth to   saturated zone	1.00  0.40  0.17
26B: Chenango, fan	   80         	Somewhat limited   Seepage   Flooding   Depth to   saturated zone	  0.90  0.40  0.17	Very limited   Seepage   Slope   Flooding   Depth to   saturated zone	  1.00  0.92  0.40    0.17
27A: Castile	   85     	  Somewhat limited   Seepage   Depth to   saturated zone	0.90	  Very limited   Seepage   Depth to   saturated zone	1.00
27B: Castile	   85       	Somewhat limited   Seepage   Depth to   saturated zone	0.90	  Very limited   Seepage   Depth to   saturated zone   Slope	1.00
28A: Scio	   85         	Somewhat limited   Seepage     Depth to   saturated zone   Restricted   permeability	0.90	   Very limited   Depth to   saturated zone   Seepage	1.00
29A: Chenango	   85 	  Somewhat limited   Seepage	0.90	  Very limited   Seepage	1.00
29B: Chenango	     85   	  Somewhat limited   Seepage 	0.90	  Very limited   Seepage   Slope	1.00
29C: Chenango	     85   	  Somewhat limited   Seepage   Slope	0.90	  Very limited   Slope   Seepage	1.00
29D: Chenango	     85   	  Very limited   Slope   Seepage	1.00	  Very limited   Slope   Seepage	1.00

Table 18.—Sewage Disposal—Continued

Map symbol and soil name	Pct. of map	Septic tank absorption fiel	ds	Sewage lagoons	1
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value
29E: Chenango	     85 	  Very limited   Slope   Seepage	    1.00  0.90	  Very limited   Slope   Seepage	1.00
31B: Collamer	   85       	Somewhat limited Depth to saturated zone Restricted permeability	0.80	   Very limited   Depth to   saturated zone   Seepage   Slope	  1.00    0.50    0.32
31C: Collamer	   85         	Somewhat limited   Depth to   saturated zone   Restricted   permeability   Slope	0.80	  Very limited   Slope   Depth to   saturated zone   Seepage	  1.00    1.00    0.50
32A: Churchville	   85     	Very limited Depth to saturated zone Restricted permeability	  1.00    0.89	   Very limited   Depth to   saturated zone   Seepage	1.00
32B: Churchville	   85       	Very limited Depth to saturated zone Restricted permeability	  1.00    0.89	Very limited   Depth to   saturated zone   Seepage   Slope	  1.00    0.50    0.32
33A: Wallington	   85         	Very limited Depth to saturated zone Depth to dense material Restricted permeability	  1.00    0.95    0.31	   Very limited   Depth to   saturated zone   Seepage	  1.00    0.50
34: Getzville	   80     	   Very limited   Depth to   saturated zone   Restricted   permeability	  1.00    0.49	  Very limited   Depth to   saturated zone   Seepage	1.00
35A: Rhinebeck	   80     	Very limited Restricted permeability Depth to saturated zone	  1.00    1.00	  Very limited   Depth to   saturated zone	1.00

Table 18.—Sewage Disposal—Continued

Map symbol and soil name	Pct. of map	Septic tank absorption fiel	ds	Sewage lagoons	
	map   unit	İ		 	
	   	Rating class and limiting features	Value	Rating class and limiting features	Value
35B: Rhinebeck	   80     		  1.00    1.00	   Very limited   Depth to   saturated zone   Slope	  1.00    0.32
35C: Rhinebeck	     80 	    Very limited   Restricted   permeability	      1.00	    Very limited   Slope	      1.00
	     	Depth to saturated zone Slope	1.00	Depth to saturated zone	1.00
36: Canadice	   75     	Very limited   Restricted   permeability   Depth to   saturated zone	  1.00    1.00	   Very limited   Depth to   saturated zone	1.00
37A: Tonawanda	   80     	Very limited Depth to saturated zone Restricted permeability	  1.00    0.49	Very limited Depth to saturated zone Seepage	  1.00    0.27
37B: Tonawanda	     80     	   Very limited   Depth to   saturated zone   Restricted   permeability	    1.00    0.49	  Very limited   Depth to   saturated zone   Slope     Seepage	    1.00    0.32    0.27
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38A: Niagara	   85     	Very limited   Depth to   saturated zone   Restricted   permeability	    1.00    0.94	Very limited Depth to saturated zone	1.00
38B: Niagara	     85   	   Very limited   Depth to   saturated zone   Restricted   permeability	    1.00    0.94	   Very limited   Depth to   saturated zone   Slope	  1.00    0.32
39A: Halsey	     85       	  Very limited   Ponding   Depth to   saturated zone   Seepage	  1.00  1.00    0.90	Very limited   Ponding   Seepage   Depth to   saturated zone	  1.00  1.00    1.00

Table 18.—Sewage Disposal—Continued

Map symbol and soil name	Pct. of map unit	of absorption fields		Sewage lagoons	
	 	Rating class and limiting features	Value	Rating class and limiting features	Value
40A: Williamson	   85           	Somewhat limited   Depth to   saturated zone   Depth to dense   material   Restricted   permeability	0.89	   Somewhat limited   Depth to   saturated zone   Seepage	0.98
40B: Williamson	   85           	Somewhat limited   Depth to   saturated zone   Depth to dense   material   Restricted   permeability	0.89	   Somewhat limited   Depth to   saturated zone   Seepage   Slope	0.98
40C: Williamson	   85             	Somewhat limited   Depth to   saturated zone   Depth to dense   material   Restricted   permeability   Slope	0.89	   Very limited   Slope   Depth to   saturated zone   Seepage	1.00
41A: Barcelona	   85         	Very limited   Depth to   saturated zone   Restricted   permeability   Depth to bedrock	  1.00    0.98    0.11	Very limited   Depth to   saturated zone   Depth to soft   bedrock   Seepage	1.00
41B: Barcelona	   85           	Very limited Depth to saturated zone Restricted permeability Depth to bedrock	  1.00    0.98    0.11	Very limited Depth to saturated zone Depth to soft bedrock Slope Seepage	  1.00    0.77    0.32  0.27
42A: Elnora	   80         	Very limited Filtering capacity Seepage  Depth to saturated zone	1.00	   Very limited   Seepage     Depth to   saturated zone	1.00
42B: Elnora	   80           	Very limited Filtering capacity Seepage Depth to saturated zone	  1.00    1.00    0.80	Very limited Seepage  Depth to saturated zone Slope	1.00

Table 18.—Sewage Disposal—Continued

Map symbol and soil name	Pct. of	absorption fiel	.ds	Sewage lagoons	
u 	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value
43: Canandaigua, silt loam	     80         	   Very limited   Ponding   Depth to   saturated zone   Restricted   permeability	1.00	  Very limited   Ponding   Depth to   saturated zone	1.00
44: Canandaigua, mucky silt loam	   85         	   Very limited   Ponding   Depth to   saturated zone   Restricted   permeability	    1.00  1.00    0.98	  Very limited   Ponding   Depth to   saturated zone   Organic matter   content	  1.00  1.00      1.00
45: Canandaigua, acid substratum	     80       	Very limited   Ponding   Depth to   saturated zone   Restricted   permeability	1.00	  Very limited   Ponding   Depth to   saturated zone	1.00
46: Swormville	   85       	Very limited   Depth to   saturated zone   Restricted   permeability	1.00	  Very limited   Depth to   saturated zone   Seepage	1.00
47A: Minoa	   80       	Very limited   Depth to   saturated zone   Restricted   permeability	1.00	   Very limited   Depth to   saturated zone   Seepage	  1.00    1.00
48A: Colonie	   80     	  Very limited   Seepage   Filtering   capacity	1.00	  Very limited   Seepage	1.00
48B: Colonie	   80     	Very limited   Seepage   Filtering   capacity	1.00	   Very limited   Seepage   Slope	1.00
48C: Colonie	   80       	  Very limited   Seepage   Filtering   capacity   Slope	1.00	  Very limited   Slope   Seepage 	  1.00  1.00 

Table 18.—Sewage Disposal—Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fiel	ds	Sewage lagoons	
	diii c   	Rating class and limiting features	Value	Rating class and limiting features	Value
49A: Red Hook	     85       	   Very limited   Depth to   saturated zone   Restricted   permeability	1.00	  Very limited   Depth to   saturated zone   Seepage	1.00
50A: Canaseraga	   85         	Somewhat limited Depth to saturated zone Depth to dense material Restricted permeability	0.89	Very limited   Depth to   saturated zone   Seepage	0.99
50B: Canaseraga	   85           	Somewhat limited Depth to saturated zone Depth to dense material Restricted permeability	0.89	Very limited Depth to saturated zone Slope Seepage	0.99
50C: Canaseraga	   85           	Somewhat limited Depth to saturated zone Depth to dense material Restricted permeability Slope	0.89	   Very limited   Slope   Depth to   saturated zone   Seepage	1.00
51B: Chadakoin	   85         	Somewhat limited   Restricted   permeability   Depth to   saturated zone	0.49	Somewhat limited   Slope	0.92
51C: Chadakoin	   85       	Somewhat limited   Restricted   permeability   Depth to   saturated zone   Slope	0.49	Very limited   Slope   Depth to   saturated zone   Seepage	0.71
51D: Chadakoin	     85     	  Very limited   Slope   Restricted   permeability	  1.00  0.49	  Very limited   Slope   Seepage	1.00
51E: Chadakoin	   85     	  Very limited   Slope   Restricted   permeability	1.00	  Very limited   Slope   Seepage	1.00

Table 18.—Sewage Disposal—Continued

Map symbol and soil name	Pct.   Septic tank   of   absorption fields   map		Sewage lagoons		
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value
51F: Chadakoin	     85   	  Very limited   Slope   Restricted   permeability	    1.00  0.49	  Very limited   Slope   Seepage	    1.00  0.50
52B: Valois	   85   	  Somewhat limited   Restricted   permeability	    0.31 	Very limited Seepage Slope	1.00
52C: Valois	     85   	  Somewhat limited   Restricted   permeability   Slope	    0.31    0.20	  Very limited   Slope       Seepage	    1.00    1.00
52D: Valois	     80   	  Very limited   Slope   Restricted   permeability	    1.00  0.31	   Very limited   Slope   Seepage	    1.00  1.00
52E: Valois	     80   	  Very limited   Slope   Restricted   permeability	    1.00  0.31	  Very limited   Slope   Seepage	    1.00  1.00
52F: Valois	     80   	  Very limited   Slope   Restricted   permeability	  1.00  0.31	   Very limited   Slope   Seepage	  1.00  1.00
53C: Valois	   30   	Somewhat limited   Restricted   permeability   Slope	  0.31    0.20	Very limited Slope Seepage	  1.00    1.00
Volusia	   25           	Very limited Depth to dense material Depth to saturated zone Restricted permeability Slope	  1.00    1.00    0.31  0.20	Very limited Depth to saturated zone Slope Seepage	  1.00    1.00    0.50
Mardin	   20             	Somewhat limited Depth to saturated zone Depth to dense material Restricted permeability Slope	  0.90    0.89    0.31    0.20	Very limited Depth to saturated zone Slope Seepage	  1.00    1.00    0.50

Table 18.—Sewage Disposal—Continued

Map symbol and soil name	Pct.   Septic tank   of   absorption fields   map   unit		Sewage lagoons		
	   	Rating class and limiting features	Value	Rating class and limiting features	Value
55A: Darien	     85     	Very limited   Depth to   saturated zone   Restricted   permeability	    1.00    0.87	   Very limited   Depth to   saturated zone   Seepage	1.00
55B: Darien	   85       	Very limited   Depth to   saturated zone   Restricted   permeability	  1.00    0.87	Very limited Depth to saturated zone Slope Seepage	1.00
55C: Darien	   85         	   Very limited   Depth to   saturated zone   Restricted   permeability   Slope	  1.00    0.87    0.20	  Very limited   Slope   Depth to   saturated zone   Seepage	1.00
56B: Chautauqua	   80       	Somewhat limited   Depth to   saturated zone   Restricted   permeability	  0.80    0.31	  Very limited   Depth to   saturated zone   Slope   Seepage	1.00
56C: Chautauqua	   80       	Somewhat limited   Depth to   saturated zone   Restricted   permeability   Slope	0.80	  Very limited   Slope     Depth to   saturated zone   Seepage	1.00
56D: Chautauqua	   80       	Very limited Slope Depth to saturated zone Restricted permeability	  1.00  0.80    0.31	   Very limited   Slope   Depth to   saturated zone   Seepage	  1.00  1.00      0.50
57A: Busti	   80     	Very limited   Depth to   saturated zone   Restricted   permeability	  1.00    0.49	  Very limited   Depth to   saturated zone   Seepage	1.00
57B: Busti	   80       	   Very limited   Depth to   saturated zone   Restricted   permeability	  1.00    0.49	   Very limited   Depth to   saturated zone   Slope   Seepage	1.00

Table 18.—Sewage Disposal—Continued

Map symbol and soil name			ds	Sewage lagoons	
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value
57C: Busti	   80         	   Very limited   Depth to   saturated zone   Restricted   permeability   Slope	  1.00    0.49    0.20	   Very limited   Slope   Depth to   saturated zone   Seepage	  1.00    1.00    0.27
58B: Rushford	   80         	Somewhat limited   Depth to   saturated zone   Depth to dense   material   Restricted   permeability	  0.90    0.89    0.31	Somewhat limited   Depth to   saturated zone   Slope   Seepage	  0.95    0.92    0.50
58C: Rushford	   80           	Somewhat limited Depth to saturated zone Depth to dense material Restricted permeability Slope	0.90	Very limited   Slope	  1.00    0.95    0.50
59B: Yorkshire	   85       	Somewhat limited Depth to saturated zone Depth to dense material Restricted permeability	0.89	Very limited Depth to saturated zone Slope Seepage	1.00
59C: Yorkshire	   85             	Somewhat limited   Depth to   saturated zone   Depth to dense   material   Restricted   permeability   Slope	0.89	   Very limited   Slope   Depth to   saturated zone   Seepage	1.00
59D: Yorkshire	   85             	Very limited Slope Depth to saturated zone Depth to dense material Restricted permeability	  1.00  0.89    0.85    0.31	   Very limited   Slope   Depth to   saturated zone   Seepage	  1.00  1.00      0.50

Table 18.—Sewage Disposal—Continued

Map symbol and soil name	Pct. of map unit	absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
60A: Napoli	   80         	Very limited   Depth to   saturated zone   Depth to dense   material   Restricted   permeability	  1.00    0.95    0.49	  Very limited   Depth to   saturated zone   Seepage	1.00
60B: Napoli	   80           	Very limited   Depth to   saturated zone   Depth to dense   material   Restricted   permeability	  1.00    0.95    0.49	  Very limited   Depth to   saturated zone   Slope   Seepage	  1.00    0.68    0.27
60C: Napoli	   80             	Very limited Depth to saturated zone Depth to dense material Restricted permeability Slope	  1.00  0.95    0.49    0.20	Very limited   Slope	1.00
60D: Napoli	   80           	Very limited Depth to saturated zone Slope Depth to dense material Restricted permeability	1.00	Very limited   Slope	1.00
61B: Schuyler	   80       	Somewhat limited   Depth to   saturated zone   Restricted   permeability	  0.80    0.49	Very limited   Depth to   saturated zone   Slope   Seepage	1.00
61C: Schuyler	   80         	Somewhat limited   Depth to   saturated zone   Restricted   permeability   Slope	0.80	   Very limited   Slope   Depth to   saturated zone   Seepage	1.00
61D: Schuyler	   80         	   Very limited   Slope   Depth to   saturated zone   Restricted   permeability	  1.00  0.80    0.49	   Very limited   Slope   Depth to   saturated zone   Seepage	  1.00  1.00    0.27

Table 18.—Sewage Disposal—Continued

Map symbol and soil name	Pct. of map	Septic tank absorption fiel	ds	Sewage lagoons	
	unit	Rating class and limiting features	Value	Rating class and limiting features	Value
61E: Schuyler	   80         	   Very limited   Slope   Depth to   saturated zone   Restricted   permeability	  1.00  0.80    0.49	  Very limited   Slope   Depth to   saturated zone   Seepage	  1.00  1.00      0.27
61F: Schuyler	   80         	Very limited   Slope   Depth to   saturated zone   Restricted   permeability	  1.00  0.80    0.49	  Very limited   Slope   Depth to   saturated zone   Seepage	  1.00  1.00      0.27
62B: Mardin	   85     	Somewhat limited Depth to saturated zone Depth to dense material Restricted	  0.90    0.89 	Very limited   Depth to   saturated zone   Slope   Seepage	  1.00    0.92    0.50
62C: Mardin	     85         	permeability    Somewhat limited   Depth to   saturated zone   Depth to dense   material   Restricted   permeability   Slope	0.90	   Very limited   Slope   Depth to   saturated zone   Seepage	1.00
62D: Mardin	   85           	Very limited Slope Depth to saturated zone Depth to dense material Restricted permeability	  1.00  0.90    0.89    0.31	   Very limited   Slope   Depth to   saturated zone   Seepage	  1.00  1.00      0.50
63B: Langford	   85           	Somewhat limited Depth to saturated zone Depth to dense material Restricted permeability	    0.89    0.88    0.31	Somewhat limited   Depth to   saturated zone   Slope   Seepage	0.94
63C: Langford	   85           	Somewhat limited   Depth to   saturated zone   Depth to dense   material   Restricted   permeability   Slope	0.89	  Very limited   Slope     Depth to   saturated zone   Seepage	1.00

Table 18.—Sewage Disposal—Continued

Map symbol and soil name	Pct. of map	absorption fiel	ds	Sewage lagoons	3
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value
63D: Langford	   85             	Very limited   Slope   Depth to   saturated zone   Depth to dense   material   Restricted   permeability	  1.00  0.89    0.88	   Very limited   Slope   Depth to   saturated zone   Seepage	1.00
64C: Mardin	   85             	Somewhat limited Depth to saturated zone Depth to dense material Surface rock fragments Restricted permeability Slope	0.90	Very limited   Slope   Depth to   saturated zone   Seepage	1.00
66B: Volusia	   80           	Very limited Depth to dense material Depth to saturated zone Surface rock fragments Restricted permeability	1.00	   Very limited   Depth to   saturated zone   Slope   Seepage	1.00
67A: Dalton	   80         	Very limited Depth to saturated zone Depth to dense material Restricted permeability	1.00	   Very limited   Depth to   saturated zone   Seepage	1.00
67B: Dalton	   80         	Very limited Depth to saturated zone Depth to dense material Restricted permeability	  1.00    0.95    0.31	Very limited   Depth to   saturated zone   Slope   Seepage	  1.00    0.92    0.50
68A: Volusia	   80           	Very limited Depth to dense material Depth to saturated zone Restricted permeability	1.00	   Very limited   Depth to   saturated zone   Seepage	1.00

Table 18.—Sewage Disposal—Continued

Map symbol and soil name	Pct. of map	absorption fiel	ds	Sewage lagoons	
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value
68B: Volusia	   80           	Very limited   Depth to dense   material   Depth to   saturated zone   Restricted   permeability	  1.00    1.00    0.31	   Very limited   Depth to   saturated zone   Slope     Seepage	  1.00    0.92    0.50
68C: Volusia	   80           	Very limited   Depth to dense   material   Depth to   saturated zone   Restricted   permeability   Slope	  1.00    1.00    0.31    0.20	Very limited   Slope     Depth to   saturated zone   Seepage	1.00
69A: Erie	   80         	Very limited   Depth to dense   material   Depth to   saturated zone   Restricted   permeability	  1.00    1.00    0.31	   Very limited   Depth to   saturated zone   Seepage	    1.00    0.50
69B: Erie	   80         	Very limited Depth to dense material Depth to saturated zone Restricted permeability	1.00	Very limited Depth to saturated zone Slope Seepage	  1.00    0.92    0.50
69C: Erie	   80             	Very limited   Depth to dense   material   Depth to   saturated zone   Restricted   permeability   Slope	1.00	Very limited   Slope   Depth to   saturated zone   Seepage	1.00
71E: Mongaup	   85             	Very limited   Slope     Depth to bedrock   Surface rock   fragments   Restricted   permeability	  1.00    0.75  0.60    0.31	Very limited Depth to hard bedrock Slope Seepage	1.00

Table 18.—Sewage Disposal—Continued

Map symbol and soil name	Pct. of map unit	absorption fiel	.ds	Sewage lagoons	•
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value
71F:	 				
Mongaup	85   	Very limited   Slope 	1.00	Very limited   Depth to hard   bedrock	1.00
	<u> </u> 	Depth to bedrock Surface rock	0.75	Slope Seepage	1.00
	   	fragments   Restricted   permeability	0.31		   
72B: Towerville	     80	    Somewhat limited		    Very limited	
TOWELVILLE	00   	Depth to   saturated zone	0.80	Depth to hard   bedrock	1.00
	j I	Depth to bedrock	0.75	Depth to saturated zone	1.00
		Restricted permeability	0.68	Slope	0.68
720.	   			Seepage   	0.50
72C: Towerville	   80 	  Somewhat limited   Depth to   saturated zone	0.80	  Very limited   Depth to hard   bedrock	1.00
	<u> </u> 	Depth to bedrock Restricted	0.75	Slope Depth to	1.00
	   	permeability   Slope 	0.20	saturated zone   Seepage 	0.50
72D: Towerville	   80 	  Very limited   Slope	1.00	  Very limited   Depth to hard	1.00
	 	Depth to	0.80	bedrock Slope	1.00
	   	saturated zone   Depth to bedrock	0.75	Depth to saturated zone	1.00
	   	Restricted permeability	0.68	Seepage	0.50
72E: Towerville	     80	    Very limited		    Very limited	
10welville	00	Slope	1.00	Depth to hard   bedrock	1.00
	 	Depth to saturated zone	0.80	Slope	1.00
	 	Depth to bedrock	0.75	Depth to saturated zone	1.00
	   	Restricted permeability	0.68	Seepage   	0.50
72F:   Towerville	   80 	  Very limited   Slope	1.00	  Very limited   Depth to hard   bedrock	1.00
	į	Depth to saturated zone	0.80	Slope	1.00
	   	saturated zone   Depth to bedrock	0.75	Depth to saturated zone	1.00
	   	Restricted permeability	0.68	Seepage	0.50

Table 18.—Sewage Disposal—Continued

Map symbol and soil name	Pct. of map	Septic tank absorption fiel	ds	   Sewage lagoons 	1
	unit	Rating class and	Value	Rating class and	Value
	ļ	limiting features		limiting features	.
73B:				 	
Gretor	80	Very limited   Depth to   saturated zone	1.00	Very limited   Depth to hard   bedrock	1.00
		Restricted   permeability	0.98	Depth to saturated zone	1.00
		Depth to bedrock	0.75	Slope	0.92
73C:	0.0	 			
Gretor	80	Very limited   Depth to	1.00	Very limited   Depth to hard	1.00
	Ì	saturated zone Restricted	0.98	bedrock	1.00
		permeability		Slope 	
		Depth to bedrock	0.75	Depth to saturated zone	1.00
74:		Slope	0.20		
Ashville	80	  Very limited		  Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted   permeability	0.99		
75:	0.5	 		 	
Alden	85	Very limited   Ponding	1.00	Very limited   Ponding	1.00
	ļ	Depth to	1.00	Depth to	1.00
	l I	saturated zone Restricted	0.99	saturated zone Organic matter	1.00
	İ	permeability	İ	content	İ
76A: Orpark	80	  Very limited		 	
Orpark	80	Depth to	1.00	Very limited   Depth to hard	1.00
		saturated zone Restricted	0.99	bedrock   Depth to	1.00
		permeability	į	saturated zone	
		Depth to bedrock	0.75		
76B: Orpark	80	  Very limited	İ	  Very limited	İ
v-F		Depth to	1.00	Depth to hard	1.00
	l I	saturated zone Restricted	0.99	bedrock   Depth to	1.00
	į	permeability	į	saturated zone	į
		Depth to bedrock	0.75 	Slope 	0.68
76C: Orpark	80	  Very limited		  Very limited	
<u>.</u>		Depth to	1.00	Depth to hard	1.00
		saturated zone Restricted	0.99	bedrock   Slope	1.00
	İ	permeability	į	_	į
		Depth to bedrock	0.75 	Depth to saturated zone	1.00
	ļ	Slope	0.20		ļ

Table 18.—Sewage Disposal—Continued

Map symbol and soil name	Pct. of map	absorption fiel	ds	Sewage lagoons	
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value
77A: Chippewa	   80       	Very limited   Depth to dense   material   Depth to   saturated zone   Restricted   permeability	1.00	  Very limited   Depth to   saturated zone   Seepage	1.00
78A: Hornell	   80         	  Very limited   Restricted   permeability   Depth to   saturated zone   Depth to bedrock	  1.00    1.00    0.75	   Very limited   Depth to soft   bedrock   Depth to   saturated zone	1.00
78B: Hornell	   80       	Very limited   Restricted   permeability   Depth to   saturated zone   Depth to bedrock	  1.00    1.00    0.75	   Very limited   Depth to soft   bedrock   Depth to   saturated zone   Slope	1.00
78C: Hornell	   80           	Very limited   Restricted   permeability   Depth to   saturated zone   Depth to bedrock   Slope	  1.00    1.00    0.75    0.20	Very limited   Depth to soft   bedrock   Slope   Depth to   saturated zone	1.00
78D: Hornell	   80       	Very limited   Restricted   permeability   Depth to   saturated zone   Slope   Depth to bedrock	  1.00    1.00    1.00    0.75	Very limited Depth to soft bedrock Slope Depth to saturated zone	1.00
78F: Hornell	   40           	Very limited   Restricted   permeability   Depth to   saturated zone   Slope   Depth to bedrock	   1.00   1.00   1.00   0.75	Very limited   Depth to soft   bedrock   Slope   Depth to   saturated zone	1.00
Hudson	   35       	Very limited   Slope   Depth to   saturated zone   Restricted   permeability	  1.00  0.85    0.85	   Very limited   Slope   Depth to   saturated zone   Seepage	1.00

Table 18.—Sewage Disposal—Continued

Map symbol and soil name	Pct. of map unit	absorption fields		Sewage lagoons	
	 	Rating class and limiting features	Value	Rating class and limiting features	Value
79B: Mongaup	     85     	  Somewhat limited   Depth to bedrock   Restricted   permeability	    0.75    0.31	  Very limited   Depth to hard   bedrock   Slope	1.00
	į Į		į Į	Seepage	0.50
79C: Mongaup	   85 	  Somewhat limited   Depth to bedrock	0.75	  Very limited   Depth to hard   bedrock	1.00
	   	Restricted permeability	0.31	Slope	1.00
	<u> </u> 	Slope	0.20	Seepage	0.50
79D: Mongaup	   85 	  Very limited   Slope 	1.00	  Very limited   Depth to hard   bedrock	1.00
		Depth to bedrock Restricted permeability	0.75	Slope Seepage	1.00
79E: Mongaup	   85       	Very limited Slope Depth to bedrock Restricted permeability	  1.00    0.75  0.31	   Very limited   Depth to hard   bedrock   Slope   Seepage	  1.00    1.00  0.50
79F: Mongaup	   85       	  Very limited   Slope   Depth to bedrock   Restricted   permeability	    1.00    0.75  0.31	  Very limited   Depth to hard   bedrock   Slope   Seepage	    1.00    1.00  0.50
80A: Fremont	     80     	Very limited   Depth to   saturated zone   Restricted   permeability	      1.00    0.49	   Very limited   Depth to   saturated zone   Seepage	1.00
80B: Fremont	   80       	  Very limited   Depth to   saturated zone   Restricted   permeability	  1.00    0.49	  Very limited   Depth to   saturated zone   Slope     Seepage	    1.00    0.92    0.27
80C: Fremont	     80   	   Very limited   Depth to   saturated zone   Restricted	    1.00    0.49	  Very limited   Slope     Depth to	1.00
		permeability   Slope	0.20	saturated zone Seepage	0.27

Table 18.—Sewage Disposal—Continued

Map symbol and soil name	Pct. of map	absorption fiel	ds	Sewage lagoons	I
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value
81B: Varysburg	     85     	Somewhat limited   Depth to   saturated zone   Restricted   permeability	    0.80    0.21	   Very limited   Depth to   saturated zone   Seepage   Slope	  1.00    1.00    0.92
81C: Varysburg	     85 	  Somewhat limited   Depth to   saturated zone	      0.80	Very limited   Slope	1.00
	 	Restricted permeability Slope	0.21	Depth to saturated zone Seepage	1.00
81D: Varysburg	     85       	   Very limited   Slope   Depth to   saturated zone   Restricted   permeability	  1.00  0.80    0.21	   Very limited   Slope   Depth to   saturated zone   Seepage	1.00
81E: Varysburg	   85       	Very limited Slope Depth to saturated zone Restricted permeability	  1.00  0.80    0.21	Very limited   Slope   Depth to   saturated zone   Seepage	  1.00  1.00    1.00
82F: Rock outcrop	     50	    Not rated		    Not rated	
Manlius	   30     	   Very limited   Slope     Depth to bedrock	  1.00    0.75	Very limited   Depth to hard   bedrock   Slope   Seepage	1.00
84B: Elko	   85         	Somewhat limited   Depth to   saturated zone   Depth to dense   material   Restricted   permeability	0.89	Somewhat limited   Depth to   saturated zone   Slope   Seepage	0.99
84C: Elko	     85   	   Somewhat limited   Depth to   saturated zone   Depth to dense   material	    0.89    0.80	  Very limited   Slope   Depth to   saturated zone	1.00
	   	Restricted permeability Slope	0.31	Seepage	0.50

Table 18.—Sewage Disposal—Continued

Map symbol and soil name	Pct. of map	absorption fiel	ds	Sewage lagoons		
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value	
85B: Onoville	   85           	Somewhat limited   Depth to   saturated zone   Depth to dense   material   Restricted   permeability	0.89	   Very limited   Depth to   saturated zone   Slope   Seepage	1.00	
85C: Onoville	   85             	Somewhat limited   Depth to   saturated zone   Depth to dense   material   Restricted   permeability   Slope	0.89	   Very limited   Slope   Depth to   saturated zone   Seepage	  1.00    1.00    0.50	
85D: Onoville	   85             	Very limited Slope Depth to saturated zone Depth to dense material Restricted permeability	  1.00  0.89    0.85	Very limited   Slope   Depth to   saturated zone   Seepage	  1.00  1.00      0.50	
86B: Eldred	   85       	   Somewhat limited   Restricted   permeability   Depth to   saturated zone	0.89	Very limited Depth to saturated zone Slope Seepage	1.00	
86C: Eldred	   85   85     	  Somewhat limited   Restricted   permeability   Depth to   saturated zone   Slope	0.89	  Very limited   Slope   Depth to   saturated zone   Seepage	  1.00    1.00    0.50	
86D: Eldred	   85         	Very limited   Slope   Restricted   permeability   Depth to   saturated zone	  1.00  0.89    0.80	  Very limited   Slope   Depth to   saturated zone   Seepage	  1.00  1.00      0.50	
87B: Shongo	   80         	Very limited   Depth to   saturated zone   Depth to dense   material   Restricted   permeability	  1.00    0.85    0.49	   Very limited   Depth to   saturated zone   Slope     Seepage	1.00	

Table 18.—Sewage Disposal—Continued

Map symbol and soil name	Pct. of map	·		Sewage lagoons	
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value
87C: Shongo	   80           	Very limited Depth to saturated zone Depth to dense material Restricted permeability Slope	1.00	Very limited   Slope     Depth to   saturated zone   Seepage	1.00
88A: Ivory	   85       	Very limited Depth to saturated zone Restricted permeability	  1.00    0.98	   Very limited   Depth to   saturated zone	1.00
88B: Ivory	   85       	   Very limited   Depth to   saturated zone   Restricted   permeability	1.00	   Very limited   Depth to   saturated zone   Slope	    1.00    0.92
88C: Ivory	   85       	Very limited Depth to saturated zone Restricted permeability Slope	1.00	   Very limited   Slope     Depth to   saturated zone	1.00
88D: Ivory	   85         	Very limited Depth to saturated zone Slope Restricted permeability	  1.00    1.00    0.98	   Very limited   Slope   Depth to   saturated zone	1.00
89B: Portville	   80           	Very limited   Depth to   saturated zone   Depth to dense   material   Restricted   permeability	  1.00    0.95    0.49	   Very limited   Depth to   saturated zone   Slope   Seepage	1.00
89C: Portville	   80             	Very limited Depth to saturated zone Depth to dense material Restricted permeability Slope	  1.00  0.95    0.49 	Very limited   Slope     Depth to   saturated zone   Seepage	  1.00  1.00    0.27

Table 18.—Sewage Disposal—Continued

Map symbol and soil name	Pct. of	absorption fiel	ds	Sewage lagoons	1
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value
90A: Brinkerton	   85           	Very limited Depth to dense material Depth to saturated zone Restricted permeability	1.00	   Very limited   Depth to   saturated zone	1.00
90B: Brinkerton	   85         	Very limited Depth to dense material Depth to saturated zone Restricted permeability	  1.00    1.00    0.98	   Very limited   Depth to   saturated zone   Slope	1.00
91A: Palms	   85           	Very limited   Ponding   Depth to   saturated zone   Restricted   permeability	  1.00  1.00    0.11	Very limited Ponding Depth to saturated zone Seepage Organic matter content	  1.00  1.00    1.00
92: Carlisle	   85         	  Very limited   Ponding   Depth to   saturated zone	  1.00  1.00	Very limited Ponding Organic matter content Depth to saturated zone Seepage	  1.00  1.00    1.00
93: Saprists, inundated-	   85           	   Very limited   Ponding   Depth to   saturated zone   Restricted   permeability	1.00	Very limited Ponding Depth to saturated zone Seepage Organic matter content	  1.00  1.00    1.00 
94B: Frewsburg	   80           	Very limited   Depth to   saturated zone   Depth to bedrock   Restricted   permeability	  1.00    0.75    0.49	Very limited  Depth to hard  bedrock  Depth to  saturated zone  Slope  Seepage	1.00

Table 18.—Sewage Disposal—Continued

Map symbol and soil name	Pct. of map	absorption fiel	ds	Sewage lagoons	3
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value
94C: Frewsburg	     80 	Very limited Depth to saturated zone	      1.00	  Very limited   Depth to hard   bedrock	1.00
	     	Depth to bedrock Restricted permeability Slope	0.75  0.49    0.20	Slope   Depth to   saturated zone   Seepage	1.00  1.00      0.27
95B: Mandy	     85	    Somewhat limited		    Very limited	
		Depth to bedrock	į	Depth to hard bedrock	1.00
	   	Restricted permeability	0.31	Slope     Seepage	0.92
95C:				Despuge   	
Mandy	85 	Somewhat limited   Depth to bedrock	0.75	Very limited   Depth to hard   bedrock	1.00
		Restricted permeability	0.31	Slope	1.00
050		Slope 	0.20	Seepage   	0.50
95D: Mandy	   85   	  Very limited   Slope 	1.00	  Very limited   Depth to hard   bedrock	1.00
	   	Depth to bedrock   Restricted   permeability	0.75  0.31 	Slope   Seepage 	1.00  0.50 
95E: Mandy	   85 	  Very limited   Slope	1.00	  Very limited   Depth to hard   bedrock	1.00
		Depth to bedrock Restricted permeability	0.75	Slope Seepage	1.00
95F: Mandy	     85 	  Very limited   Slope	1.00	  Very limited   Depth to hard   bedrock	1.00
	     	Depth to bedrock Restricted permeability	0.75	Slope   Seepage	1.00
96B: Carrollton	     80 	  Somewhat limited   Depth to bedrock	0.75	  Very limited   Depth to hard   bedrock	1.00
		   Depth to   saturated zone	0.33	Dedrock   Depth to   saturated zone	1.00
	 	Restricted permeability	0.31	Slope	0.92
				Seepage	0.50

Table 18.—Sewage Disposal—Continued

Map symbol and soil name	Pct. of map	Septic tank absorption fiel	ds	Sewage lagoons	
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value
96C: Carrollton	     80 	    Somewhat limited   Depth to bedrock	      0.75	     Very limited   Depth to hard   bedrock	      1.00
	   	Restricted permeability Slope	0.31	Slope     Seepage	1.00    0.50
0.67					
96D: Carrollton	   80 	  Very limited   Slope 	    1.00	  Very limited   Depth to hard   bedrock	1.00
	   	Depth to bedrock Restricted permeability	0.75  0.31	Slope Seepage	1.00
96E: Carrollton	     80	    Very limited   Slope	      1.00	    Very limited   Depth to hard	1.00
	   	Depth to bedrock	0.75	bedrock   Slope   Seepage	1.00
	 	permeability			
96F: Carrollton	   80 	  Very limited   Slope	1.00	  Very limited   Depth to hard   bedrock	1.00
	       	Depth to bedrock   Restricted   permeability	0.75	Slope   Seepage	1.00
97B: Kinzua	   85 	  Somewhat limited   Restricted   permeability	    0.31	  Somewhat limited   Slope	0.92
	į		İ	Seepage	0.50
97C: Kinzua	     85 	  Somewhat limited   Restricted	0.31	  Very limited   Slope	1.00
		permeability Slope	0.20	   Seepage	0.50
97D: Kinzua	     85	    Very limited		    Very limited	
000		Slope Restricted permeability	1.00  0.31 	Slope   Seepage 	1.00
97E: Kinzua	   85     	   Very limited   Slope   Restricted   permeability	  1.00  0.31 	   Very limited   Slope   Seepage	  1.00  0.50
97F: Kinzua	   85   	   Very limited   Slope   Restricted   permeability	  1.00  0.31	Very limited Slope Seepage	  1.00  0.50

Table 18.—Sewage Disposal—Continued

Map symbol and soil name	Pct. of map	absorption fiel	ds	Sewage lagoons	
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value
98D: Kinzua	   85       	Very limited   Slope   Surface rock   fragments   Restricted   permeability	  1.00  0.40    0.31	   Very limited   Slope   Seepage	1.00
98E: Kinzua	   85       	   Very limited   Slope   Surface rock   fragments   Restricted   permeability	  1.00  0.40    0.31	  Very limited   Slope   Seepage	  1.00  0.50 
99B: Buchanan	   85       	Somewhat limited   Depth to   saturated zone   Depth to dense   material   Restricted   permeability	  0.80    0.75    0.31	Very limited   Slope     Depth to   saturated zone   Seepage	1.00
99C: Buchanan	   85           	Somewhat limited Depth to saturated zone Depth to dense material Restricted permeability Slope	0.80	Very limited   Slope     Depth to   saturated zone   Seepage	  1.00    0.88    0.50
99D: Buchanan	   85           	Very limited Slope Depth to saturated zone Depth to dense material Restricted permeability	  1.00  0.80    0.75    0.31	   Very limited   Slope   Depth to   saturated zone   Seepage	  1.00  0.88    0.50
100: Udorthents	85	  Not rated		  Not rated	
101: Udorthents, refuse substratum	       90	    Not rated		    Not rated	
102C: Mandy	   40     	Somewhat limited   Depth to bedrock   Restricted   permeability   Slope	0.75	Very limited Depth to hard bedrock Slope Seepage	  1.00    1.00    0.50
Rock outcrop	   35 	  Not rated 		  Not rated 	   

Table 18.—Sewage Disposal—Continued

Map symbol and soil name	Pct. of map unit	absorption fiel	ds	   Sewage lagoons 	
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value
103C: Knapp Creek	   40       	   Very limited   Seepage   Filtering   capacity   Slope	    1.00  1.00    0.20	   Very limited   Seepage   Slope   Depth to hard   bedrock	  1.00  1.00      0.01
Park subsum		Depth to bedrock	0.11		
Rock outcrop	35	Not rated 		Not rated 	
104B: Flatiron	   80   	Somewhat limited   Surface rock   fragments	    0.40 	  Very limited   Seepage     Slope	1.00
104C: Flatiron	     80 	  Somewhat limited   Surface rock   fragments	      0.40	Very limited   Slope	1.00
		Slope 	0.20	Seepage 	1.00
104D: Flatiron	   80   	  Very limited   Slope   Surface rock   fragments	    1.00  0.40	  Very limited   Slope   Seepage	1.00
104E: Flatiron	     80   	  Very limited   Slope   Surface rock   fragments	    1.00  0.40	  Very limited   Slope   Seepage	  1.00  1.00
108D: Hartleton	     85     	  Very limited   Slope   Depth to bedrock 	    1.00  0.11	   Very limited   Slope   Seepage   Depth to hard   bedrock	  1.00  1.00  0.01
108E: Hartleton	     85     	   Very limited   Slope   Depth to bedrock	    1.00  0.11 	Very limited Slope Seepage Depth to hard bedrock	  1.00  1.00  0.01
108F: Hartleton	     85       	  Very limited   Slope   Depth to bedrock	    1.00  0.11	   Very limited   Slope   Seepage   Depth to hard   bedrock	  1.00  1.00  0.01
131: Lamson	     85     	  Very limited   Depth to   saturated zone	1.00	   Very limited   Depth to   saturated zone   Seepage	  1.00    1.00

Table 18.—Sewage Disposal—Continued

Map symbol and soil name	Pct. of map unit	absorption fiel	ds	Sewage lagoons		
	ļ 	Rating class and limiting features	Value	Rating class and limiting features	Value	
132B: Wiscoy	   80           	Very limited   Depth to dense   material   Depth to   saturated zone   Restricted   permeability	  1.00    1.00    0.31	   Very limited   Depth to   saturated zone   Slope	    1.00    0.92	
132C: Wiscoy	   80           	Very limited   Depth to dense   material   Depth to   saturated zone   Restricted   permeability   Slope	  1.00  1.00    0.31  0.20	   Very limited   Slope   Depth to   saturated zone	  1.00    1.00   	
135C: Hudson	   85         	Somewhat limited   Depth to   saturated zone   Restricted   permeability   Slope	0.85	Very limited   Slope     Depth to   saturated zone   Seepage	  1.00    1.00    0.21	
135D: Hudson	   85       	Very limited   Slope   Depth to   saturated zone   Restricted   permeability	  1.00  0.85    0.85	Very limited Slope Depth to saturated zone Seepage	  1.00  1.00      0.21	
135E: Hudson	   85         	Very limited   Slope   Depth to   saturated zone   Restricted   permeability	1.00	Very limited Slope Depth to saturated zone Seepage	1.00	
140D: Dunkirk	   85   	  Very limited   Slope   Restricted   permeability	  1.00  0.87	   Very limited   Slope   Seepage	1.00	
140E: Dunkirk	     85     	  Very limited   Slope   Restricted   permeability	    1.00  0.87	  Very limited   Slope   Seepage	1.00	

Table 18.—Sewage Disposal—Continued

Map symbol and soil name	Pct. of map	absorption fiel	ds	Sewage lagoons	ı
	unit     	Rating class and limiting features	Value	Rating class and	Value
185C: Onoville	     85 	  Somewhat limited   Depth to	0.89	  Very limited   Slope	1.00
		saturated zone Depth to dense material	0.85	Depth to saturated zone	1.00
		Surface rock fragments	0.80	Seepage	0.50
	   	Restricted permeability Slope	0.31		
185D: Onoville	     85	    Very limited		    Very limited	
Olloville		Slope	1.00	Slope	1.00
		Depth to saturated zone	0.89	Depth to saturated zone	1.00
		Depth to dense material	0.85	Seepage 	0.50
		Surface rock fragments	0.80		
	   	Restricted permeability	0.31		   
187B: Shongo	80	  Very limited		  Very limited	į
Shongo		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to dense	0.85	Slope	1.00
		Surface rock fragments Restricted	0.80	   Seepage 	0.27
		permeability	į Į		į Į
187C: Shongo	   80 	  Very limited   Depth to   saturated zone	1.00	  Very limited   Slope 	1.00
		Depth to dense material	0.85	Depth to saturated zone	1.00
		Surface rock fragments	0.80	Seepage	0.27
		Restricted   permeability	0.49		ļ
		Slope	0.20		
188B: Cavode	85	  Very limited	j I	  Very limited	j I
	İ	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	0.89	Slope	0.92
			j I	   Seepage 	0.27
188C: Cavode	85	  Very limited		  Very limited	 
		Depth to saturated zone	1.00	Slope 	1.00
		Restricted permeability	0.89	Depth to saturated zone	1.00
		Slope	0.20	Seepage	0.27

Table 18.—Sewage Disposal—Continued

Map symbol and soil name	Pct. of map	Septic tank   absorption fiel	ds	Sewage lagoons   	
	unit				
		Rating class and   limiting features	Value	Rating class and limiting features	Value
188D:					
Cavode	85   	Very limited   Depth to   saturated zone	1.00	Very limited   Slope 	1.00
	İ	Slope	1.00	Depth to saturated zone	1.00
	ļ ļ	Restricted permeability	0.89	Seepage	0.27
189B:				 	
Portville	80	Very limited   Depth to	1.00	Very limited   Depth to	1.00
		saturated zone Depth to dense	0.95	saturated zone	1.00
		material Surface rock	0.80	   Seepage	0.27
		fragments   Restricted   permeability	0.49	   	   
189C:		 			
Portville	80	Very limited   Depth to	1.00	Very limited   Slope	1.00
		saturated zone Depth to dense	0.95	Depth to	1.00
		material Surface rock	0.80	saturated zone Seepage	0.27
		fragments   Restricted	0.49		
195C:		permeability   Slope	0.20	   	
Mandy	85	Somewhat limited		  Very limited	1 00
		Surface rock fragments	0.80	Depth to hard bedrock	1.00
		Depth to bedrock Restricted	0.75	Slope Seepage	1.00
	ļ ļ	permeability   Slope	0.20		
195D:	 				
Mandy	85 	Very limited   Slope	1.00	Very limited   Depth to hard	1.00
		Surface rock	0.80	bedrock Slope	1.00
	     	fragments Depth to bedrock Restricted permeability	0.75	   Seepage 	0.50
195E: Mandy	     85	    Very limited		    Very limited	
•		Slope	1.00	Depth to hard bedrock	1.00
	İ	Surface rock fragments	0.80	Slope	1.00
		Depth to bedrock Restricted permeability	0.75	Seepage	0.50

Table 18.—Sewage Disposal—Continued

Map symbol and soil name	Pct. of map	absorption fiel	ds	Sewage lagoons	
	unit     	Rating class and limiting features	Value	Rating class and limiting features	Value
199C: Buchanan	   85           	Somewhat limited   Depth to   saturated zone   Surface rock   fragments   Depth to dense   material   Restricted   permeability   Slope	    0.80  0.80    0.75    0.31 	   Very limited   Slope   Depth to   saturated zone   Seepage	    1.00    0.88    0.50
199D: Buchanan	   85               	Very limited   Slope   Depth to   saturated zone   Surface rock   fragments   Depth to dense   material   Restricted   permeability	  1.00  0.80  0.80  0.75  0.31	   Very limited   Slope   Depth to   saturated zone   Seepage	    1.00  0.88    0.50
289B: Ceres	   85     	  Somewhat limited   Depth to bedrock   	    0.11   	Very limited Seepage Slope Depth to hard bedrock	  1.00  0.92  0.88
289C: Ceres	   85       	   Somewhat limited   Slope   Depth to bedrock	  0.20  0.11 	Very limited Slope Seepage Depth to hard bedrock	  1.00  1.00  0.88
289D: Ceres	   85     	  Very limited   Slope   Depth to bedrock	  1.00  0.11 	Very limited   Slope   Seepage   Depth to hard   bedrock	  1.00  1.00  0.88
289E: Ceres	   85     	  Very limited   Slope   Depth to bedrock	  1.00  0.11 	Very limited   Slope   Seepage   Depth to hard   bedrock	  1.00  1.00  0.88
289F: Ceres	   85       	  Very limited   Slope   Depth to bedrock	  1.00  0.11 	Very limited Slope Seepage Depth to hard bedrock	  1.00  1.00  0.88

Table 18.—Sewage Disposal—Continued

Map symbol and soil name	Pct. of map unit	absorption fiel	ds	   Sewage lagoons   	1
	i ! !	Rating class and limiting features	Value	Rating class and limiting features	Value
400: Wakeville	     80	    Very limited		    Very limited	
	       	Flooding   Depth to   saturated zone   Restricted   permeability	1.00	Flooding Depth to saturated zone Seepage	1.00  1.00    0.50
496B:					
Gilpin	85   	Somewhat limited   Depth to bedrock	0.75	Very limited   Depth to hard   bedrock	1.00
		Depth to saturated zone	0.33	Depth to saturated zone	1.00
		Restricted   permeability	0.31	Slope	0.92
496C:		 		Seepage   	0.50
Gilpin	85	Somewhat limited   Depth to bedrock	0.75	  Very limited   Depth to hard   bedrock	1.00
		Restricted permeability	0.31	Slope	1.00
40CD:		Slope 	0.20	Seepage 	0.50
496D: Gilpin	   85 	  Very limited   Slope 	1.00	  Very limited   Depth to hard   bedrock	1.00
		Depth to bedrock Restricted permeability	0.75	Slope   Seepage 	1.00
496E: Gilpin	     85	    Very limited		    Very limited	   
		Slope	1.00	Depth to hard bedrock	1.00
		Depth to bedrock   Restricted   permeability	0.75	Slope   Seepage 	1.00
496F: Gilpin	   85 	  Very limited   Slope	1.00	  Very limited   Depth to hard   bedrock	1.00
		Depth to bedrock   Restricted   permeability	0.75	Slope Seepage	1.00
497D: Rayne	80	  Very limited		  Very limited	
	   	Slope Restricted permeability	1.00	Slope   Seepage 	1.00
497E: Rayne	     80	    Very limited		    Very limited	
-4		Slope   Restricted   permeability	1.00	Slope   Seepage	1.00

Table 18.—Sewage Disposal—Continued

Map symbol	Pct.		<b>a</b>	Sewage lagoons		
and soil name	of map	absorption fiel				
	unit	 				
	İ	Rating class and	Value	Rating class and	Value	
	ļ	limiting features	İ	limiting features	. <u> </u>	
497F:						
Rayne	80	  Very limited		  Very limited		
<del>-</del>	İ	Slope	1.00	Slope	1.00	
	į Į	Restricted permeability	0.31	Seepage	0.50	
498E:	 					
Rayne	80	Very limited	İ	Very limited	İ	
		Slope	1.00	Slope	1.00	
		Surface rock fragments	0.40	Seepage	0.50	
		Restricted permeability	0.31			
800:						
Holderton	80	Very limited		Very limited		
		Flooding	1.00	Flooding	1.00	
	ļ	Depth to	1.00	Depth to	1.00	
		saturated zone		saturated zone		
		Restricted permeability	0.31	Seepage	1.00	
PG:						
Pits, gravel	85	Not rated	į	Not rated	į	
Ur:	 					
Urban land	85	Not rated		Not rated		
W:		 				
Water	100	Not rated		Not rated	!	

## Table 19.-Landfills

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	landfill	У	Area sanitary		   Daily cover fo   landfill 	or
	İ	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1: Udifluvents	40	  Very limited   Flooding	1.00	  Very limited   Flooding	    1.00  1.00	  Very limited   Too sandy	  1.00  1.00
		Depth to   saturated zone   Too sandy   Seepage	1.00	Depth to   saturated zone   Seepage	1.00	Seepage     Gravel content 	0.99
Fluvaquents	35	  Very limited   Flooding	1.00	  Very limited   Flooding	1.00	  Very limited   Depth to	    1.00
		Produing     Depth to	1.00	Depth to	1.00	saturated zone Too sandy	1.00
		saturated zone Too sandy Seepage	1.00	saturated zone   Seepage	1.00	   Seepage   Gravel content	1.00
2:						 	
Hamlin	85   	Very limited   Flooding   Depth to   saturated zone	1.00	Very limited   Flooding   Depth to   saturated zone	1.00	Not limited 	
		sacuraced zone		saturated zone			
3: Tioga	85	  Very limited   Flooding	    1.00	  Very limited   Flooding	    1.00	  Very limited   Seepage	    1.00
	   	Depth to saturated zone Seepage	1.00    1.00	Depth to saturated zone Seepage	1.00    1.00		
			į				
4: Teel	85	  Very limited   Flooding	1.00	  Very limited   Flooding	1.00	  Somewhat limited   Depth to   saturated zone	0.95
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Saturated Zone	
5: Wayland	85	    Very limited   Flooding	1.00	    Very limited   Flooding	      1.00	    Very limited   Depth to	1.00
		Depth to	1.00	Depth to	1.00	saturated zone	
		saturated zone		saturated zone			
6A: Wyalusing	   85 	  Very limited   Flooding	1.00	  Very limited   Flooding	    1.00	  Very limited   Depth to   saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	saturated zone   Seepage 	1.00
		Seepage Too sandy	1.00	Seepage 	1.00	Gravel content Too sandy	0.69

Table 19.-Landfills-Continued

Map symbol and soil name	Pct. of map unit	landfill	У	Area sanitary landfill		Daily cover fo	r
	ļ	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
7A: Philo	     85 	    Very limited   Flooding	1.00	    Very limited   Flooding	      1.00	  Somewhat limited   Depth to	0.95
	     	Depth to saturated zone Seepage	1.00	Depth to saturated zone Seepage	1.00	saturated zone   Seepage 	0.21
8: Middlebury	   85       	  Very limited   Flooding   Depth to   saturated zone   Seepage	    1.00  1.00    1.00	   Very limited   Flooding   Depth to   saturated zone   Seepage	  1.00  1.00    1.00	  Very limited   Seepage   Depth to   saturated zone	    1.00  0.95
9: Pawling	   85       	   Very limited   Flooding   Depth to   saturated zone   Too sandy	1.00	   Very limited   Flooding   Depth to   saturated zone   Seepage	  1.00  1.00      1.00	Very limited Too sandy Seepage Depth to saturated zone	  1.00  1.00    0.95
10: Atkins	       85	Seepage Very limited Flooding	1.00        1.00	     Very limited   Flooding	      1.00	Gravel content  Very limited  Depth to  saturated zone	1.00
	       	Depth to saturated zone Seepage	1.00	Depth to saturated zone Seepage	1.00	Sacurated Zone   Seepage 	0.21
11B: Ischua	   85     	  Very limited   Depth to   saturated zone   Depth to bedrock	  1.00    1.00	  Very limited   Depth to   saturated zone   Depth to bedrock	  1.00    1.00	   Very limited   Depth to bedrock     Depth to   saturated zone	1.00
11C: Ischua	     85   	  Very limited   Depth to   saturated zone   Depth to bedrock	    1.00    1.00	  Very limited   Depth to   saturated zone   Depth to bedrock	    1.00    1.00	  Very limited   Depth to bedrock     Depth to	1.00
		Slope	0.63	Slope	0.63	saturated zone	0.63
11D: Ischua	   85   	  Very limited   Depth to   saturated zone   Slope	    1.00    1.00	  Very limited   Slope     Depth to	    1.00    1.00	   Very limited   Depth to bedrock     Slope	1.00
	   	Depth to bedrock	  1.00 	saturated zone	  1.00 	Depth to saturated zone	0.95

Table 19.-Landfills-Continued

Map symbol and soil name	Pct. of map	Trench sanitar	У	Area sanitary   landfill		Daily cover fo	r
	unit   	Rating class and limiting features	Value	Rating class and	Value	Rating class and limiting features	Value
11E: Ischua	     85 	    Very limited   Depth to   saturated zone	1.00	  Very limited   Slope	1.00	  Very limited   Depth to bedrock	1.00
		Slope	1.00	Depth to saturated zone	1.00	   Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to saturated zone	0.95
11F: Ischua	   85 	  Very limited   Depth to   saturated zone	1.00	  Very limited   Slope	1.00	  Very limited   Depth to bedrock	1.00
	İ	Slope	1.00	Depth to saturated zone	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to saturated zone	0.95
12B: Franklinville	   85   	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	1.00	  Somewhat limited   Gravel content	0.78
12C: Franklinville	   85   	  Very limited   Depth to   saturated zone   Slope	    1.00    0.63	  Very limited   Depth to   saturated zone   Slope	    1.00    0.63	  Somewhat limited   Gravel content       Slope	0.78
12D: Franklinville	     85 	    Very limited   Slope	1.00	    Very limited   Slope	      1.00	  Very limited   Slope   Gravel content	    1.00  0.78
12E: Franklinville	     85   	  Very limited   Slope 	      1.00	  Very limited   Slope 	      1.00	  Very limited   Slope   Gravel content	    1.00  0.78
14B: Hornellsville	85	Depth to	1.00	  Very limited   Depth to	    1.00	  Very limited   Depth to bedrock	1.00
		saturated zone Depth to bedrock	1.00	saturated zone Depth to bedrock	1.00	Depth to	1.00
	   	   Too clayey 	1.00	 	   	saturated zone Too clayey	1.00
14C: Hornellsville	   85   	  Very limited   Depth to   saturated zone   Depth to bedrock	    1.00    1.00	  Very limited   Depth to   saturated zone   Depth to bedrock	    1.00    1.00	  Very limited   Depth to bedrock     Depth to	  1.00    1.00
	     	Too clayey	1.00	Slope	0.63	saturated zone Too clayey Slope	1.00
15B: Willdin	   85     	  Very limited   Depth to   saturated zone	    1.00   	Somewhat limited   Depth to   saturated zone	    0.99   	Somewhat limited   Depth to   saturated zone   Gravel content	0.99

Table 19.-Landfills-Continued

Map symbol and soil name	Pct. of map unit	Trench sanitar landfill	Area sanitary	•	Daily cover for landfill		
	 	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
15C: Willdin	   85       	Very limited  Depth to  saturated zone  Slope	1.00	  Somewhat limited   Depth to   saturated zone   Slope	0.99	Somewhat limited   Depth to   saturated zone   Gravel content   Slope	0.99
15D: Willdin	   85       	Very limited Depth to saturated zone Slope	1.00	  Very limited   Slope     Depth to   saturated zone	  1.00    0.99	Very limited Slope Depth to saturated zone Gravel content	  1.00    0.99    0.89
16A: Almond	     80   	Very limited  Depth to  saturated zone  Too clayey	1.00	  Very limited   Depth to   saturated zone	1.00	   Very limited   Depth to   saturated zone   Too clayey	1.00
16B: Almond	   80     	Very limited Depth to saturated zone Too clayey	1.00	  Very limited   Depth to   saturated zone	1.00	   Very limited   Depth to   saturated zone   Too clayey	1.00
16C: Almond	   80     	Very limited  Depth to  saturated zone  Slope  Too clayey	1.00  0.63  0.50	   Very limited   Depth to   saturated zone   Slope	1.00	Very limited Depth to saturated zone Slope Too clayey	1.00
17B: Salamanca	   80     	Very limited Depth to saturated zone	1.00	   Very limited   Depth to   saturated zone	1.00	Somewhat limited   Depth to   saturated zone   Gravel content	0.95
17C: Salamanca	   80   	Very limited  Depth to  saturated zone  Slope	1.00	   Very limited   Depth to   saturated zone   Slope	1.00	Somewhat limited Depth to saturated zone Slope Gravel content	0.95
17D: Salamanca	   80       	Very limited Depth to saturated zone Slope	  1.00    1.00	  Very limited   Slope     Depth to   saturated zone	    1.00    1.00	   Very limited   Slope   Depth to   saturated zone   Gravel content	  1.00    0.95    0.06
17E: Salamanca	     80   	Very limited  Depth to  saturated zone  Slope	1.00	  Very limited   Slope     Depth to   saturated zone	1.00	  Very limited   Slope     Depth to   saturated zone	1.00

Table 19.-Landfills-Continued

Map symbol and soil name	Pct. of map	landfill	У	Area sanitary		Daily cover fo	r
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
18A: Pope	     85   	  Very limited   Flooding   Seepage	    1.00  1.00	  Very limited   Flooding   Seepage	    1.00  1.00	  Somewhat limited   Seepage	0.22
19A: Olean	     85   	  Very limited   Depth to   saturated zone   Seepage	    1.00    1.00	  Very limited   Depth to   saturated zone   Seepage	    1.00    1.00	  Very limited   Seepage     Depth to	1.00
	     	Too sandy	  0.50 		     	saturated zone Too sandy Gravel content	0.50
19B: Olean	   85   	  Very limited   Depth to   saturated zone   Seepage	  1.00    1.00	  Very limited   Depth to   saturated zone   Seepage	1.00	   Very limited   Seepage     Depth to	1.00
	   	   Too sandy   	  0.50 	 		saturated zone Too sandy Gravel content	0.50
20A: Unadilla	   85 	  Very limited   Seepage	    1.00	  Not limited 	   	  Not limited 	   
20B: Unadilla	     85 	  Very limited   Seepage	      1.00	  Not limited		  Not limited	
20C: Unadilla	     85   	  Very limited   Seepage   Slope	    1.00  0.63	  Somewhat limited   Slope 	      0.63	  Somewhat limited   Slope	0.63
20D: Unadilla	     85   	  Very limited   Slope   Seepage	    1.00  1.00	  Very limited   Slope	    1.00	  Very limited   Slope	1.00
22A: Allard	   85     	  Very limited   Seepage   Too sandy	  1.00  1.00	  Very limited   Seepage	    1.00 	   Very limited   Too sandy   Seepage   Gravel content	1.00  1.00  0.26
22B: Allard	     85     	  Very limited   Too sandy   Seepage	    1.00  1.00	  Very limited   Seepage 	    1.00 	  Very limited   Too sandy   Seepage   Gravel content	1.00  1.00  0.26
25A: Chenango	     85   	  Very limited   Seepage   Too sandy	    1.00  1.00	  Very limited   Seepage	    1.00 	   Very limited   Too sandy   Seepage   Gravel content	  1.00  1.00  1.00

Table 19.-Landfills-Continued

Map symbol and soil name	Pct. of map unit	landfill	У	Area sanitary landfill		Daily cover fo	r
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
25B: Chenango	     85     	   Very limited   Seepage   Too sandy	    1.00  1.00	  Very limited   Seepage	    1.00 	   Very limited   Too sandy   Seepage   Gravel content	  1.00  1.00  1.00
25C: Chenango	   85       	   Very limited   Seepage   Too sandy   Slope	  1.00  1.00  0.63	  Very limited   Seepage   Slope	  1.00  0.63 	  Very limited   Too sandy   Seepage   Gravel content   Slope	  1.00  1.00  1.00  0.63
25D: Chenango	   85       	Very limited   Slope   Seepage   Too sandy	  1.00  1.00  1.00	  Very limited   Slope   Seepage	  1.00  1.00 	   Very limited   Slope   Too sandy   Seepage   Gravel content	1.00  1.00  1.00  1.00
25E: Chenango	   80     	Very limited Slope Seepage Too sandy	  1.00  1.00  1.00	  Very limited   Slope   Seepage	  1.00  1.00	   Very limited   Slope   Too sandy   Seepage   Gravel content	  1.00  1.00  1.00
25F: Chenango	     80     	   Very limited   Slope   Seepage   Too sandy	    1.00  1.00  1.00	  Very limited   Slope   Seepage	    1.00  1.00	  Very limited   Slope   Too sandy   Seepage   Gravel content	  1.00  1.00  1.00  1.00
26A: Chenango, fan	     80     	  Very limited   Depth to   saturated zone   Seepage   Flooding	    1.00    1.00  0.40	   Very limited   Depth to   saturated zone   Seepage   Flooding	    1.00    1.00  0.40	  Very limited   Gravel content     Seepage	1.00
26B: Chenango, fan	   80     	Very limited Depth to saturated zone Seepage Flooding	    1.00    1.00  0.40	  Very limited   Depth to   saturated zone   Seepage   Flooding	    1.00    1.00  0.40	  Very limited   Gravel content     Seepage	    1.00    0.21
27A: Castile	   85           	Very limited  Depth to saturated zone Seepage Too sandy	    1.00  1.00  1.00	   Very limited   Depth to   saturated zone   Seepage	      1.00    1.00	Very limited Too sandy Seepage Gravel content Depth to saturated zone	    1.00  1.00  1.00  0.95

Table 19.-Landfills-Continued

Map symbol and soil name	Pct. of map unit	Trench sanitar	ТУ	Area sanitary landfill		Daily cover fo			
	unit	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value		
27B: Castile	     85   	   Very limited   Depth to   saturated zone   Seepage	1.00	  Very limited   Depth to   saturated zone   Seepage	    1.00    1.00	Very limited   Too sandy     Seepage	1.00		
		Too sandy   	1.00			Gravel content Depth to saturated zone	1.00  0.95		
28A: Scio	     85     	   Very limited   Depth to   saturated zone   Seepage	1.00	  Very limited   Depth to   saturated zone	    1.00 	  Somewhat limited   Depth to   saturated zone	0.95		
29A: Chenango	   85     	  Very limited   Seepage   Too sandy	1.00	  Very limited   Seepage 	    1.00 	   Very limited   Seepage   Gravel content   Too sandy	  1.00  1.00  0.50		
29B: Chenango	   85     	Very limited Seepage Too sandy	1.00	  Very limited   Seepage	    1.00   	Very limited Seepage Gravel content Too sandy	  1.00  1.00  0.50		
29C: Chenango	   85       	   Very limited   Seepage   Slope   Too sandy	1.00  0.63  0.50	  Very limited   Seepage   Slope	  1.00  0.63 	  Very limited   Seepage   Gravel content   Slope   Too sandy	1.00  1.00  0.63  0.50		
29D: Chenango	   85     	   Very limited   Slope   Seepage   Too sandy	1.00  1.00  0.50	  Very limited   Slope   Seepage	  1.00  1.00	Very limited   Slope   Seepage   Gravel content   Too sandy	  1.00  1.00  1.00  0.50		
29E: Chenango	   85       	   Very limited   Slope   Seepage   Too sandy	  1.00  1.00  0.50	  Very limited   Slope   Seepage	    1.00  1.00	   Very limited   Slope   Seepage   Gravel content   Too sandy	1.00  1.00  1.00  0.50		
31B: Collamer	   85   	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	1.00	  Somewhat limited   Depth to   saturated zone   Too clayey	0.95		
31C: Collamer	     85   	   Very limited   Depth to   saturated zone   Slope	1.00	  Very limited   Depth to   saturated zone   Slope	  1.00    0.63	  Somewhat limited   Depth to   saturated zone   Slope   Too clayey	0.95		

Table 19.-Landfills-Continued

Map symbol and soil name	Pct. of map	Trench sanitar	У	Area sanitary		Daily cover fo	or
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
32A: Churchville	     85     	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone   Too clayey	1.00
32B: Churchville	   85     	Very limited   Depth to   saturated zone	    1.00   	  Very limited   Depth to   saturated zone	    1.00   	Very limited   Depth to   saturated zone   Too clayey	1.00
33A: Wallington	   85   	  Very limited   Depth to   saturated zone	    1.00 	  Very limited   Depth to   saturated zone	    1.00 	  Very limited   Depth to   saturated zone	1.00
34: Getzville	   80     	Very limited   Depth to   saturated zone   Too sandy   Seepage	  1.00  1.00  1.00	  Very limited   Depth to   saturated zone   Seepage	1.00	Very limited   Depth to   saturated zone   Too sandy   Seepage	1.00
35A: Rhinebeck	   80     	  Very limited   Depth to   saturated zone   Too clayey	1.00	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone   Too clayey	1.00
35B: Rhinebeck	   80     	   Very limited   Depth to   saturated zone   Too clayey	    1.00    0.50	  Very limited   Depth to   saturated zone	    1.00   	Very limited   Depth to   saturated zone   Too clayey	1.00
35C: Rhinebeck	   80       	Very limited   Depth to   saturated zone   Slope   Too clayey	  1.00    0.63  0.50	  Very limited   Depth to   saturated zone   Slope	  1.00    0.63	   Very limited   Depth to   saturated zone   Too clayey   Slope	1.00
36: Canadice	   75     	  Very limited   Depth to   saturated zone   Too clayey	1.00	  Very limited   Depth to   saturated zone	    1.00     	Very limited   Depth to   saturated zone   Too clayey   Hard to compact	1.00
37A: Tonawanda	   80   	  Very limited   Depth to   saturated zone	    1.00 	  Very limited   Depth to   saturated zone	    1.00 	  Very limited   Depth to   saturated zone	1.00
37B: Tonawanda	   80   	Very limited   Depth to   saturated zone	    1.00	  Very limited   Depth to   saturated zone	    1.00	  Very limited   Depth to   saturated zone	1.00

Table 19.-Landfills-Continued

Map symbol and soil name	Pct. of map	Trench sanitar	У	Area sanitary		Daily cover fo	r
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
38A: Niagara	   85   	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	1.00	   Very limited   Depth to   saturated zone   Too clayey	1.00
38B: Niagara	   85       	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	    1.00   	   Very limited   Depth to   saturated zone   Too clayey	1.00
39A: Halsey	   85   	  Very limited   Depth to   saturated zone   Ponding	    1.00    1.00	  Very limited   Ponding       Depth to	    1.00    1.00	  Very limited   Ponding       Depth to	1.00
	       	Seepage   Too sandy	  1.00  1.00	saturated zone Seepage	  1.00 	saturated zone Too sandy Seepage Gravel content	1.00  1.00  0.16
40A: Williamson	   85   	  Very limited   Depth to   saturated zone	1.00	  Somewhat limited   Depth to   saturated zone	    0.98 	  Somewhat limited   Depth to   saturated zone	0.99
40B: Williamson	   85   	  Very limited   Depth to   saturated zone	    1.00	  Somewhat limited   Depth to   saturated zone	    0.98	   Somewhat limited   Depth to   saturated zone	0.99
40C: Williamson	   85   	  Very limited   Depth to   saturated zone   Slope	    1.00    0.63	  Somewhat limited   Depth to   saturated zone   Slope	    0.98    0.63	  Somewhat limited   Depth to   saturated zone   Slope	0.99
41A: Barcelona	   85     	  Very limited   Depth to   saturated zone   Depth to bedrock   Too clayey	      1.00    1.00  0.50	  Very limited   Depth to   saturated zone   Depth to bedrock	    1.00    0.77	   Very limited   Depth to   saturated zone   Depth to bedrock   Too clayey	  1.00    0.77  0.50
41B: Barcelona	     85     	   Very limited   Depth to   saturated zone   Depth to bedrock   Too clayey	    1.00    1.00  0.50	  Very limited   Depth to   saturated zone   Depth to bedrock	1.00	Very limited   Depth to   saturated zone   Depth to bedrock   Too clayey	    1.00    0.77  0.50
42A: Elnora	   80         	   Very limited   Depth to   saturated zone   Seepage   Too sandy	  1.00    1.00  1.00	  Very limited   Depth to   saturated zone   Seepage	    1.00    1.00	Very limited   Too sandy     Seepage   Depth to   saturated zone	      1.00  1.00  0.95

Table 19.-Landfills-Continued

Map symbol and soil name	Pct. of map unit	landfill	У	Area sanitary   landfill 	•	Daily cover for landfill		
	ļ	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	
42B: Elnora	   80       	   Very limited   Depth to   saturated zone   Seepage   Too sandy	      1.00    1.00	  Very limited   Depth to   saturated zone   Seepage	      1.00    1.00	  Very limited   Too sandy     Seepage   Depth to   saturated zone	      1.00    1.00  0.95	
43: Canandaigua, silt loam	     80     	  Very limited   Depth to   saturated zone   Ponding	      1.00    1.00	   Very limited   Ponding     Depth to   saturated zone	1.00	  Very limited   Ponding     Depth to   saturated zone	1.00	
44: Canandaigua, mucky silt loam	       85     	  Very limited   Depth to   saturated zone   Ponding	1.00	  Very limited   Ponding     Depth to   saturated zone	1.00	  Very limited   Ponding     Depth to   saturated zone	      1.00    1.00	
45: Canandaigua, acid substratum	       80   	  Very limited   Depth to   saturated zone   Ponding	      1.00    1.00	  Very limited   Ponding   Depth to   saturated zone	1.00	  Very limited   Ponding   Depth to   saturated zone	1.00	
46: Swormville	     85     	   Very limited   Depth to   saturated zone   Too sandy   Seepage	  1.00    1.00  1.00	   Very limited   Depth to   saturated zone   Seepage	1.00	   Very limited   Depth to   saturated zone   Too sandy   Seepage	  1.00    1.00  0.50	
47A: Minoa	     80   	  Very limited   Depth to   saturated zone   Seepage	    1.00    1.00	  Very limited   Depth to   saturated zone   Seepage	1.00	  Very limited   Depth to   saturated zone   Seepage	1.00	
48A: Colonie	   80 	  Very limited   Seepage   Too sandy	    1.00  0.50	  Very limited   Seepage	1.00	  Very limited   Seepage   Too sandy	1.00	
48B: Colonie	     80   	  Very limited   Seepage   Too sandy	    1.00  0.50	  Very limited   Seepage	1.00	  Very limited   Seepage   Too sandy	1.00	
48C: Colonie	   80     	  Very limited   Seepage   Slope   Too sandy	  1.00  0.63  0.50	  Very limited   Seepage   Slope	  1.00  0.63	  Very limited   Seepage   Slope   Too sandy	1.00  0.63  0.50	

Table 19.-Landfills-Continued

Map symbol and soil name	Pct. of map unit	Trench sanitar	У	Area sanitary		Daily cover fo	r
	unit	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
49A: Red Hook	   85     	   Very limited   Depth to   saturated zone   Seepage	  1.00    1.00	  Very limited   Depth to   saturated zone   Seepage	  1.00    1.00	  Very limited   Depth to   saturated zone   Gravel content   Seepage	  1.00    0.75  0.21
50A: Canaseraga	     85   	  Very limited   Depth to   saturated zone	      1.00	  Very limited   Depth to   saturated zone	      0.99 	  Very limited   Depth to   saturated zone	      0.99
50B: Canaseraga	   85 	  Very limited   Depth to   saturated zone	    1.00 	  Very limited   Depth to   saturated zone	    0.99 	  Very limited   Depth to   saturated zone	    0.99 
50C: Canaseraga	   85   	  Very limited   Depth to   saturated zone   Slope	    1.00    0.63	  Very limited   Depth to   saturated zone   Slope	    0.99    0.63	  Very limited   Depth to   saturated zone   Slope	0.99
51B: Chadakoin	   85 	  Very limited   Depth to   saturated zone	    1.00	  Very limited   Depth to   saturated zone	    1.00	  Somewhat limited   Gravel content	0.25
51C: Chadakoin	     85   	   Very limited   Depth to   saturated zone   Slope	    1.00    0.63	   Very limited   Depth to   saturated zone   Slope	    1.00    0.63	Somewhat limited   Slope   Gravel content	0.63
51D: Chadakoin	   85 	  Very limited   Slope	      1.00	  Very limited   Slope	      1.00	  Very limited   Slope   Gravel content	  1.00  0.25
51E: Chadakoin	   85 	  Very limited   Slope	      1.00	  Very limited   Slope	      1.00	  Very limited   Slope   Gravel content	1.00
51F: Chadakoin	   85 	  Very limited   Slope	    1.00	  Very limited   Slope	    1.00	  Very limited   Slope   Gravel content	  1.00  0.25
52B: Valois	85	  Very limited   Seepage	      1.00	  Very limited   Seepage	      1.00	  Somewhat limited   Gravel content   Seepage	    0.24  0.21
52C: Valois	   85   	  Very limited   Seepage   Slope	    1.00  0.63	  Very limited   Seepage   Slope 	    1.00  0.63	  Somewhat limited   Slope   Gravel content   Seepage	  0.63  0.24  0.21

Table 19.-Landfills-Continued

Map symbol and soil name	Pct. of map unit	landfill	У	Area sanitary		Daily cover fo	r
		Rating class and   limiting features	Value	Rating class and   limiting features	Value	Rating class and limiting features	Value
52D: Valois	   80   	  Very limited   Slope   Seepage	  1.00  1.00	   Very limited   Slope   Seepage	  1.00  1.00	   Very limited   Slope   Gravel content   Seepage	1.00  0.24  0.21
52E: Valois	   80   	  Very limited   Slope   Seepage	1.00	  Very limited   Slope   Seepage	    1.00  1.00	   Very limited   Slope   Gravel content   Seepage	1.00  0.24  0.21
52F: Valois	   80   	  Very limited   Slope   Seepage	  1.00  1.00	  Very limited   Slope   Seepage	  1.00  1.00	   Very limited   Slope   Gravel content   Seepage	1.00  0.24  0.21
53C: Valois	     30   	  Very limited   Seepage   Slope	    1.00  0.04	!	    1.00  0.04	I .	  0.24  0.21  0.04
Volusia	   25     	  Very limited   Depth to   saturated zone   Slope	  1.00    0.04	saturated zone	  1.00    0.04	saturated zone	  1.00    0.33  0.04
Mardin	   20   	  Very limited   Depth to   saturated zone   Slope	  1.00    0.04	  Very limited   Depth to   saturated zone   Slope	  1.00    0.04	  Very limited   Depth to   saturated zone   Slope	1.00
55A: Darien	   85     	  Very limited   Depth to   saturated zone	    1.00 	   Very limited   Depth to   saturated zone	    1.00   	Very limited   Depth to   saturated zone   Too clayey	1.00
55B: Darien	   85   	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	    1.00 	   Very limited   Depth to   saturated zone   Too clayey	1.00
55C: Darien	   85     	   Very limited   Depth to   saturated zone   Slope	  1.00    0.63	   Very limited   Depth to   saturated zone   Slope	  1.00    0.63	Very limited Depth to saturated zone Slope Too clayey	1.00
56B: Chautauqua	     80   	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	    1.00 	Somewhat limited Depth to saturated zone Gravel content	0.95

Table 19.-Landfills-Continued

Map symbol and soil name	Pct. of map unit	landfill	Area sanitary		Daily cover fo	r	
	unit	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
56C: Chautauqua	   80     	  Very limited   Depth to   saturated zone   Slope	  1.00    0.63	  Very limited   Depth to   saturated zone   Slope	    1.00    0.63	Somewhat limited   Depth to   saturated zone   Slope   Gravel content	0.95
56D: Chautauqua	   80       	  Very limited   Depth to   saturated zone   Slope	    1.00    1.00	   Very limited   Slope     Depth to   saturated zone	    1.00    1.00	   Very limited   Slope   Depth to   saturated zone   Gravel content	    1.00    0.95    0.02
57A: Busti	   80   	  Very limited   Depth to   saturated zone	      1.00	    Very limited   Depth to   saturated zone	      1.00	   Very limited   Depth to   saturated zone   Gravel content	1.00
57B: Busti	     80   	  Very limited   Depth to   saturated zone	    1.00 	  Very limited   Depth to   saturated zone	1.00	   Very limited   Depth to   saturated zone   Gravel content	1.00
57C: Busti	   80       	  Very limited   Depth to   saturated zone   Slope	    1.00    0.63	  Very limited   Depth to   saturated zone   Slope	    1.00    0.63	   Very limited   Depth to   saturated zone   Slope   Gravel content	  1.00    0.63  0.05
58B: Rushford	     80   	  Very limited   Depth to   saturated zone	    1.00	  Somewhat limited   Depth to   saturated zone	    0.95	Somewhat limited   Depth to   saturated zone	0.97
58C: Rushford	   80   	  Very limited   Depth to   saturated zone   Slope	  1.00    0.63	  Somewhat limited   Depth to   saturated zone   Slope	0.95	Somewhat limited   Depth to   saturated zone   Slope	0.97
59B: Yorkshire	   85       	  Very limited   Depth to   saturated zone   Too clayey	  1.00    0.50	  Very limited   Depth to   saturated zone	    1.00   	   Very limited   Depth to   saturated zone   Too clayey   Gravel content	  1.00    0.50  0.13
59C: Yorkshire	   85       	  Very limited   Depth to   saturated zone   Slope   Too clayey	  1.00    0.63  0.50	  Very limited   Depth to   saturated zone   Slope	  1.00    0.63	Very limited Depth to saturated zone Slope Too clayey Gravel content	  1.00    0.63  0.50  0.13

Table 19.-Landfills-Continued

Map symbol and soil name	Pct. of map unit	landfill	У	Area sanitary landfill		Daily cover fo landfill	or
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
59D:	 						
Yorkshire	85	Very limited   Depth to   saturated zone	1.00	Very limited   Slope	1.00	   Very limited   Slope	1.00
		Slope	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey   	0.50	 		Too clayey Gravel content	0.50
60A: Napoli		 		   		 	
Napoli	80	Very limited   Depth to	1.00	! <del>-</del>	1.00	Very limited   Depth to	1.00
		saturated zone Too clayey	0.50	saturated zone		saturated zone Too clayey	0.50
60B: Napoli	80	    Verv limited		    Very limited		    Very limited	
		Depth to saturated zone	1.00	! -	1.00	! <del>-</del>	1.00
		Too clayey	0.50			Too clayey	0.50
60C: Napoli	80	  Very limited		  Very limited	İ	  Very limited	
-	İ	Depth to saturated zone	1.00		1.00	Depth to saturated zone	1.00
		Slope   Too clayey	0.63	Slope	0.63	Slope   Too clayey	0.63
60D:		 		 		 	
Napoli	80	Very limited   Depth to   saturated zone	1.00	Very limited   Slope	1.00	Very limited   Slope	1.00
		Slope	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	0.50	sacurated zone		Too clayey	0.50
61B: Schuyler	80	    Very limited		    Very limited	ļ	    Somewhat limited	
-	į į	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.95
		Too clayey	0.50				
61C: Schuyler	80	  Very limited		  Very limited		  Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.95
		Slope Too clayey	0.63	Slope	0.63	Slope	0.63
61D:							
Schuyler	80	Very limited Depth to	1.00	Very limited   Slope	1.00	Very limited   Slope	1.00
		saturated zone	1.00	Depth to	1.00	Depth to	0.95
		   Too clayey	0.50	saturated zone		saturated zone	

Table 19.-Landfills-Continued

Map symbol and soil name	Pct. of map	landfill	У	Area sanitary		Daily cover fo	r
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
61E: Schuyler	     80 	  Very limited   Depth to   saturated zone	      1.00	  Very limited   Slope	      1.00	  Very limited   Slope	1.00
		Slope Too clayey	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.95
61F: Schuyler	     80 	  Very limited   Depth to	      1.00	  Very limited   Slope	      1.00	  Very limited   Slope	1.00
	     	saturated zone   Slope     Too clayey	  1.00    0.50	   Depth to   saturated zone 	  1.00   	   Depth to   saturated zone 	  0.95 
62B: Mardin	     85   	     Very limited   Depth to   saturated zone	      1.00	     Very limited   Depth to   saturated zone	      1.00	  Very limited   Depth to   saturated zone	      1.00
62C: Mardin	   85   	  Very limited   Depth to   saturated zone   Slope	  1.00    0.63	  Very limited   Depth to   saturated zone   Slope	  1.00    0.63	   Very limited   Depth to   saturated zone   Slope	  1.00    0.63
62D: Mardin	     85     	   Very limited   Depth to   saturated zone   Slope	    1.00    1.00	Very limited Slope Depth to saturated zone	    1.00    1.00	Very limited Slope Depth to saturated zone	      1.00    1.00
63B: Langford	     85 	  Very limited   Depth to   saturated zone	      1.00	Somewhat limited   Depth to   saturated zone	      0.94	Somewhat limited Depth to saturated zone	      0.96
63C: Langford	     85   	  Very limited   Depth to   saturated zone   Slope	1.00	  Somewhat limited   Depth to   saturated zone   Slope	    0.94    0.63	  Somewhat limited   Depth to   saturated zone   Slope	    0.96    0.63
63D: Langford	     85 	  Very limited   Depth to   saturated zone	      1.00	    Very limited   Slope 	      1.00	  Very limited   Slope	1.00
	     	Slope   	1.00	Depth to saturated zone	0.94	Depth to saturated zone	0.96
64C: Mardin	   85     	  Very limited   Depth to   saturated zone   Slope	  1.00    0.63	  Very limited   Depth to   saturated zone   Slope	  1.00    0.63	  Very limited   Depth to   saturated zone   Slope	    1.00    0.63

Table 19.-Landfills-Continued

Map symbol and soil name	Pct. of map unit	landfill	У	Area sanitary		Daily cover fo	r
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
66B: Volusia	     80   	  Very limited   Depth to   saturated zone	    1.00 	  Very limited   Depth to   saturated zone	    1.00 	  Very limited   Depth to   saturated zone   Gravel content	1.00
67A: Dalton	   80   	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	1.00
67B: Dalton	   80   	  Very limited   Depth to   saturated zone	    1.00 	  Very limited   Depth to   saturated zone	    1.00 	  Very limited   Depth to   saturated zone	1.00
68A: Volusia	   80   	  Very limited   Depth to   saturated zone	    1.00 	  Very limited   Depth to   saturated zone	    1.00   	  Very limited   Depth to   saturated zone   Gravel content	1.00
68B: Volusia	   80   	  Very limited   Depth to   saturated zone	    1.00 	  Very limited   Depth to   saturated zone	    1.00 	  Very limited   Depth to   saturated zone   Gravel content	1.00
68C: Volusia	   80     	  Very limited   Depth to   saturated zone   Slope	    1.00    0.63	  Very limited   Depth to   saturated zone   Slope	    1.00    0.63	  Very limited   Depth to   saturated zone   Slope   Gravel content	  1.00    0.63  0.33
69A: Erie	     80   	  Very limited   Depth to   saturated zone	      1.00 	  Very limited   Depth to   saturated zone	      1.00 	  Very limited   Depth to   saturated zone   Gravel content	1.00
69B: Erie	   80   	  Very limited   Depth to   saturated zone	    1.00 	  Very limited   Depth to   saturated zone	    1.00   	Very limited   Depth to   saturated zone   Gravel content	1.00
69C: Erie	   80     	  Very limited   Depth to   saturated zone   Slope	  1.00    0.63	  Very limited   Depth to   saturated zone   Slope	    1.00    0.63	  Very limited   Depth to   saturated zone   Slope   Gravel content	  1.00    0.63  0.06
71E: Mongaup	   85     	   Very limited   Slope   Depth to bedrock	  1.00  1.00	  Very limited   Slope   Depth to bedrock	  1.00  1.00 	  Very limited   Depth to bedrock   Slope   Gravel content	  1.00  1.00  0.23

Table 19.-Landfills-Continued

Map symbol and soil name	Pct. of map unit	Trench sanitar	У	Area sanitary		Daily cover fo	r
- <u></u>		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
71F: Mongaup	     85   	  Very limited   Slope   Depth to bedrock	    1.00  1.00	  Very limited   Slope   Depth to bedrock	    1.00  1.00	   Very limited   Depth to bedrock   Slope   Gravel content	  1.00  1.00  0.23
72B: Towerville	     80     	  Very limited   Depth to   saturated zone   Depth to bedrock	1.00	  Very limited   Depth to   saturated zone   Depth to bedrock	    1.00    1.00	   Very limited   Depth to bedrock   Depth to   saturated zone	1.00
72C: Towerville	     80       	  Very limited   Depth to   saturated zone   Depth to bedrock     Slope	1.00	   Very limited   Depth to   saturated zone   Depth to bedrock     Slope	    1.00    1.00    0.63	Very limited   Depth to bedrock   Depth to   saturated zone   Slope	    1.00    0.95    0.63
72D: Towerville	     80       	   Very limited   Depth to   saturated zone   Slope   Depth to bedrock	    1.00    1.00	   Very limited   Slope   Depth to   saturated zone   Depth to bedrock	    1.00    1.00	Very limited   Depth to bedrock   Slope   Depth to	    1.00    1.00    0.95
72E: Towerville	     80       	   Very limited   Depth to   saturated zone   Slope   Depth to bedrock	1.00	Very limited   Slope   Depth to   saturated zone   Depth to bedrock	   1.00   1.00   1.00	saturated zone	1.00
72F: Towerville	     80   	  Very limited   Depth to   saturated zone   Slope	1.00	  Very limited   Slope   Depth to   saturated zone	1.00	Very limited   Depth to bedrock   Slope	1.00
73B: Gretor	               	Depth to bedrock 	        1.00	Depth to bedrock  Very limited  Depth to  saturated zone  Depth to bedrock	1.00	Depth to saturated zone  Very limited Depth to bedrock  Depth to saturated zone Gravel content	0.95

Table 19.-Landfills-Continued

Map symbol and soil name	Pct. of map unit	landfill	У	Area sanitary		Daily cover fo	r
	unit	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73C: Gretor	80	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to bedrock	į
	   	Depth to bedrock     Slope	1.00    0.63	Depth to bedrock     Slope	1.00    0.63	Depth to saturated zone Slope	1.00    0.63
74:						Gravel content	0.45
Ashville	80	   Very limited   Depth to   saturated zone	1.00	   Very limited   Depth to   saturated zone	1.00	   Very limited   Depth to   saturated zone	1.00
75: Alden	85	  Very limited   Depth to   saturated zone	1.00	  Very limited   Ponding	1.00	  Very limited   Ponding	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
76A: Orpark	80	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to bedrock	1.00
		Depth to bedrock	1.00	!	1.00	Depth to saturated zone Too clayey	1.00
76B: Orpark	80	Very limited   Depth to   saturated zone	1.00	 	1.00	Very limited   Depth to bedrock	
		Depth to bedrock Too clayey	1.00    0.50	Depth to bedrock	1.00	Depth to saturated zone Too clayey	1.00    0.50
76C: Orpark	80	  Very limited   Depth to   saturated zone   Depth to bedrock	    1.00 	  Very limited   Depth to   saturated zone   Depth to bedrock	      1.00	  Very limited   Depth to bedrock     Depth to	    1.00    1.00
		Slope   Too clayey	0.63	Slope	0.63	saturated zone Slope Too clayey	0.63
77A: Chippewa	   80     	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	    1.00   	  Very limited   Depth to   saturated zone   Gravel content	1.00
78A: Hornell	80	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to saturated zone	1.00
		Too clayey	1.00			Too clayey	1.00

Table 19.-Landfills-Continued

Map symbol and soil name	Pct. of map	Trench sanitar	У	Area sanitary landfill		Daily cover fo landfill	r
	unit   	Rating class and limiting features	Value	Rating class and	Value	Rating class and limiting features	Value
78B: Hornell	   80       	   Very limited   Depth to   saturated zone   Depth to bedrock     Too clayey	  1.00    1.00	  Very limited   Depth to   saturated zone   Depth to bedrock	    1.00    1.00	Very limited Depth to bedrock Depth to saturated zone Too clayey	  1.00    1.00
78C: Hornell	     80   	  Very limited   Depth to   saturated zone   Depth to bedrock	    1.00    1.00	  Very limited   Depth to   saturated zone   Depth to bedrock	    1.00    1.00	  Very limited   Depth to bedrock     Depth to   saturated zone	    1.00    1.00
	   	Too clayey Slope	1.00	Slope   	0.63	Too clayey   Slope	1.00
78D: Hornell	   80     	Very limited Depth to saturated zone Slope Depth to bedrock	  1.00    1.00 	Very limited   Slope   Depth to   saturated zone   Depth to bedrock	  1.00    1.00 	Very limited Depth to bedrock Slope Depth to	  1.00    1.00 
	   	Too clayey	1.00			saturated zone Too clayey	1.00
78F: Hornell	   40     		  1.00    1.00	Very limited   Slope   Depth to   saturated zone	  1.00    1.00	Very limited   Depth to bedrock   Slope	1.00
	   	Depth to bedrock Too clayey	1.00	Depth to bedrock	1.00	Depth to saturated zone Too clayey	1.00
Hudson	   35         	Very limited   Depth to   saturated zone   Slope   Too clayey	  1.00    1.00    1.00	Very limited   Slope	  1.00    1.00 	Very limited Slope Too clayey Hard to compact Depth to saturated zone	  1.00    1.00    1.00  0.98
79B: Mongaup	     85 	  Very limited   Depth to bedrock	      1.00	  Very limited   Depth to bedrock	      1.00	  Very limited   Depth to bedrock   Gravel content	    1.00  0.24
79C: Mongaup	     85     	  Very limited   Depth to bedrock   Slope	    1.00  0.63	  Very limited   Depth to bedrock   Slope 	    1.00  0.63	   Very limited   Depth to bedrock   Slope   Gravel content	  1.00  0.63  0.24
79D: Mongaup	   85     	  Very limited   Slope   Depth to bedrock	  1.00  1.00	  Very limited   Slope   Depth to bedrock	  1.00  1.00 	Very limited Depth to bedrock Slope Gravel content	  1.00  1.00  0.24

Table 19.-Landfills-Continued

Map symbol and soil name	Pct. of map unit	Trench sanitar	Area sanitary		Daily cover for landfill		
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
79E: Mongaup	     85     	  Very limited   Slope   Depth to bedrock	    1.00  1.00	  Very limited   Slope   Depth to bedrock	  1.00  1.00	   Very limited   Depth to bedrock   Slope   Gravel content	1.00  1.00  0.24
79F: Mongaup	     85     	Slope	1.00	  Very limited   Slope   Depth to bedrock	    1.00  1.00	  Very limited   Depth to bedrock   Slope   Gravel content	  1.00  1.00  0.24
80A: Fremont	   80   	  Very limited   Depth to   saturated zone	    1.00 	  Very limited   Depth to   saturated zone	    1.00 	   Very limited   Depth to   saturated zone   Too clayey	1.00
80B: Fremont	     80   	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone   Too clayey	1.00
80C: Fremont	   80   	   Very limited   Depth to   saturated zone   Slope	  1.00    0.63	  Very limited   Depth to   saturated zone   Slope	  1.00    0.63	   Very limited   Depth to   saturated zone   Slope   Too clayey	1.00  0.63  0.50
81B: Varysburg	     85     	  Very limited   Depth to   saturated zone   Too clayey	    1.00    1.00	  Very limited   Depth to   saturated zone   Seepage	    1.00    1.00	  Somewhat limited   Depth to   saturated zone   Too clayey	0.78
81C: Varysburg	   85     	Very limited   Depth to   saturated zone   Too clayey   Slope	  1.00    1.00  0.63	  Very limited   Depth to   saturated zone   Seepage   Slope	  1.00    1.00  0.63	Somewhat limited   Depth to   saturated zone   Slope   Too clayey	0.78
81D: Varysburg	     85 	  Very limited   Depth to   saturated zone	1.00	  Very limited   Slope	1.00	  Very limited   Slope 	1.00
	     	Slope     Too clayey	1.00	Depth to   saturated zone   Seepage	1.00	Depth to saturated zone Too clayey	0.78
81E: Varysburg	   85   	  Very limited   Depth to   saturated zone	1.00	  Very limited   Slope 	    1.00 	  Very limited   Slope 	1.00
	     	Slope     Too clayey 	1.00	Depth to   saturated zone   Seepage 	1.00    1.00	Depth to   saturated zone   Too clayey 	0.78

Table 19.-Landfills-Continued

Map symbol and soil name	Pct.   Trench sanitary   of   landfill   map		У	Area sanitary		Daily cover fo	r
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
82F: Rock outcrop	50	    Not rated		    Not rated		    Not rated	
Manlius	30	   Very limited   Slope   Depth to bedrock   Seepage	  1.00  1.00  1.00	   Very limited   Slope   Depth to bedrock   Seepage	  1.00  1.00  1.00	Very limited Depth to bedrock Slope Gravel content Seepage	1.00   1.00   0.97   0.21
84B: Elko	   85     	  Very limited   Depth to   saturated zone	1.00	  Somewhat limited   Depth to   saturated zone	    0.99   	  Somewhat limited   Depth to   saturated zone   Gravel content	0.99
84C: Elko	   85       	  Very limited   Depth to   saturated zone   Slope	  1.00    0.63	  Somewhat limited   Depth to   saturated zone   Slope	    0.99    0.63	Somewhat limited   Depth to   saturated zone   Slope   Gravel content	0.99
85B: Onoville	   85   	  Very limited   Depth to   saturated zone   Too clayey	1.00	  Very limited   Depth to   saturated zone	    1.00 	   Very limited   Depth to   saturated zone   Too clayey	1.00
85C: Onoville	   85     	  Very limited   Depth to   saturated zone   Slope   Too clayey	  1.00    0.63  0.50	  Very limited   Depth to   saturated zone   Slope	  1.00    0.63	Very limited Depth to saturated zone Slope Too clayey	1.00
85D: Onoville	   85       	  Very limited   Depth to   saturated zone   Slope     Too clayey	  1.00    1.00    0.50	  Very limited   Slope     Depth to   saturated zone	1.00	   Very limited   Slope   Depth to   saturated zone   Too clayey	  1.00    1.00    0.50
86B: Eldred	     85   	  Very limited   Depth to   saturated zone   Too clayey	1.00	  Very limited   Depth to   saturated zone	      1.00 	Somewhat limited Depth to saturated zone Too clayey Gravel content	    0.95    0.50  0.04
86C: Eldred	   85         	   Very limited   Depth to   saturated zone   Slope   Too clayey	    1.00    0.63  0.50	  Very limited   Depth to   saturated zone   Slope	1.00	Somewhat limited Depth to saturated zone Slope Too clayey Gravel content	  0.95    0.63  0.50  0.04

Table 19.-Landfills-Continued

Map symbol and soil name	Pct. of map unit	Trench sanitar landfill	Y	Area sanitary		Daily cover fo	r
	unit	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
86D: Eldred	  -   85 	  Very limited   Depth to   saturated zone	1.00	  Very limited   Slope	1.00	  Very limited   Slope	1.00
	     	Slope     Too clayey	1.00    0.50	Depth to saturated zone	1.00	Depth to saturated zone Too clayey Gravel content	0.95    0.50  0.04
87B: Shongo	80	   Very limited   Depth to   saturated zone   Too clayey	1.00	  Very limited   Depth to   saturated zone	1.00	   Very limited   Depth to   saturated zone   Too clayey   Gravel content	  1.00    0.50  0.10
87C: Shongo	80	   Very limited   Depth to   saturated zone   Slope   Too clayey	  1.00    0.63  0.50	  Very limited   Depth to   saturated zone   Slope	1.00	  Very limited   Depth to   saturated zone   Slope   Too clayey   Gravel content	  1.00    0.63  0.50  0.10
88A: Ivory	85	   Very limited   Depth to   saturated zone   Too clayey	1.00	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone   Too clayey	1.00
88B: Ivory	85	   Very limited   Depth to   saturated zone   Too clayey	1.00	  Very limited   Depth to   saturated zone	1.00	   Very limited   Depth to   saturated zone   Too clayey	1.00
88C: Ivory	85	   Very limited   Depth to   saturated zone   Too clayey   Slope	1.00	  Very limited   Depth to   saturated zone   Slope	1.00	   Very limited   Depth to   saturated zone   Too clayey   Slope	1.00
88D: Ivory	85	  Very limited   Depth to   saturated zone	1.00	  Very limited   Slope	1.00	  Very limited   Slope	1.00
	     	Slope Too clayey	1.00	Depth to saturated zone	1.00	Depth to saturated zone Too clayey	1.00
89B: Portville	80	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Gravel content	1.00
89C: Portville	80	Very limited Depth to saturated zone Slope	1.00	Very limited   Depth to   saturated zone   Slope	1.00	Very limited   Depth to   saturated zone   Slope   Gravel content	  1.00    0.63  0.29

Table 19.-Landfills-Continued

Map symbol and soil name	Pct. of map unit	Trench sanitar   landfill 	У	Area sanitary   landfill 		Daily cover fo landfill	r
		Rating class and limiting features	Value	Rating class and   limiting features	Value	Rating class and limiting features	Value
90A: Brinkerton	     85 	   Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	1.00
90B: Brinkerton	   85   	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	    1.00 	  Very limited   Depth to   saturated zone	1.00
91A: Palms	   85       	  Very limited   Depth to   saturated zone   Ponding	  1.00    1.00	Very limited   Ponding	  1.00    1.00    1.00	  Very limited   Ponding     Depth to   saturated zone	1.00
92: Carlisle	   85   85       	Very limited   Depth to   saturated zone   Ponding   Organic matter   content	  1.00    1.00    1.00	  Very limited   Ponding   Depth to   saturated zone   Seepage	  1.00    1.00    1.00		  1.00    1.00    1.00    0.15
93: Saprists, inundated-	   85       	Seepage  Very limited  Depth to  saturated zone  Ponding	1.00	Very limited   Ponding     Depth to   saturated zone   Seepage	1.00	Very limited   Ponding   Depth to   saturated zone	1.00
94B: Frewsburg	   80           	   Very limited   Depth to   saturated zone   Depth to bedrock     Too clayey	  1.00    1.00    0.50	  Very limited   Depth to   saturated zone   Depth to bedrock	  1.00    1.00	Very limited   Depth to bedrock   Depth to   saturated zone   Too clayey   Gravel content	  1.00    1.00    0.50  0.02
94C: Frewsburg	   80             	Very limited   Depth to   saturated zone   Depth to bedrock   Slope   Too clayey	  1.00    1.00    0.63  0.50	  Very limited   Depth to   saturated zone   Depth to bedrock   Slope	  1.00    1.00    0.63	Very limited   Depth to bedrock   Depth to   saturated zone   Slope   Too clayey   Gravel content	  1.00    1.00    0.63  0.50  0.02
95B: Mandy	   85 	  Very limited   Depth to bedrock	    1.00	  Very limited   Depth to bedrock	1.00	  Very limited   Depth to bedrock   Gravel content	1.00

Table 19.-Landfills-Continued

Map symbol and soil name	Pct. of map unit	Trench sanitar	У	Area sanitary   landfill		Daily cover for landfill		
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	
95C: Mandy	     85   	  Very limited   Depth to bedrock   Slope	    1.00  0.63	  Very limited   Depth to bedrock   Slope	    1.00  0.63	  Very limited   Depth to bedrock   Gravel content   Slope	  1.00  0.96  0.63	
95D: Mandy	     85   	  Very limited   Slope   Depth to bedrock	    1.00  1.00	  Very limited   Slope   Depth to bedrock	    1.00  1.00	  Very limited   Depth to bedrock   Slope   Gravel content	  1.00  1.00  0.96	
95E: Mandy	   85   	  Very limited   Slope   Depth to bedrock	    1.00  1.00	  Very limited   Slope   Depth to bedrock	    1.00  1.00	Very limited   Depth to bedrock   Slope   Gravel content	  1.00  1.00  0.96	
95F: Mandy	   85   	  Very limited   Slope   Depth to bedrock	  1.00  1.00	  Very limited   Slope   Depth to bedrock	  1.00  1.00	   Very limited   Depth to bedrock   Slope   Gravel content	  1.00  1.00  0.96	
96B: Carrollton	   80     	  Very limited   Depth to   saturated zone   Depth to bedrock	1.00	  Very limited   Depth to   saturated zone   Depth to bedrock	  1.00    1.00	Very limited   Depth to bedrock   Depth to   saturated zone   Gravel content	  1.00    0.50    0.12	
96C: Carrollton	   80   	    Very limited   Depth to bedrock   Slope		    Very limited   Depth to bedrock   Slope	    1.00  0.63	   Very limited   Depth to bedrock   Slope   Gravel content	    1.00  0.63  0.12	
96D: Carrollton	   80     	  Very limited   Slope   Depth to bedrock	  1.00  1.00	  Very limited   Slope   Depth to bedrock	    1.00  1.00 	  Very limited   Depth to bedrock   Slope   Gravel content	  1.00  1.00  0.12	
96E: Carrollton	   80     	   Very limited   Slope   Depth to bedrock	    1.00  1.00 	  Very limited   Slope   Depth to bedrock	  1.00  1.00 	   Very limited   Depth to bedrock   Slope   Gravel content	  1.00  1.00  0.12	
96F: Carrollton	   80   	  Very limited   Slope   Depth to bedrock	  1.00  1.00	  Very limited   Slope   Depth to bedrock	  1.00  1.00	Very limited   Depth to bedrock   Slope   Gravel content	  1.00  1.00  0.12	
97B: Kinzua	     85   	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	1.00	  Somewhat limited   Gravel content 	0.47	

Table 19.-Landfills-Continued

Map symbol and soil name	Pct.   Trench sanitary   of   landfill   map		Area sanitary   landfill		Daily cover fo	r	
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
97C: Kinzua	     85   	  Very limited   Depth to   saturated zone   Slope	      1.00    0.63	  Very limited   Depth to   saturated zone   Slope	    1.00    0.63	  Somewhat limited   Slope   Gravel content	    0.63    0.47
97D: Kinzua	     85 	    Very limited   Slope	      1.00	    Very limited   Slope	      1.00	  Very limited   Slope   Gravel content	    1.00  0.47
97E: Kinzua	     85   	    Very limited   Slope	      1.00	    Very limited   Slope 	      1.00	  Very limited   Slope   Gravel content	    1.00  0.47
97F: Kinzua	   85   	  Very limited   Slope	    1.00	  Very limited   Slope	1.00	  Very limited   Slope   Gravel content	1.00
98D: Kinzua	     85 	  Very limited   Slope	    1.00	  Very limited   Slope	    1.00	  Very limited   Slope   Gravel content	1.00
98E: Kinzua	     85 	    Very limited   Slope 	      1.00	    Very limited   Slope 	      1.00	  Very limited   Slope   Gravel content	  1.00  0.47
99B: Buchanan	     85   	  Very limited   Depth to   saturated zone	      1.00	  Somewhat limited   Depth to   saturated zone	      0.88 	   Somewhat limited   Depth to   saturated zone   Gravel content	0.93
99C: Buchanan	     85     	  Very limited   Depth to   saturated zone   Slope	    1.00    0.63	  Somewhat limited   Depth to   saturated zone   Slope	    0.88    0.63	  Somewhat limited   Depth to   saturated zone   Slope   Gravel content	  0.93    0.63  0.34
99D: Buchanan	     85       	  Very limited   Depth to   saturated zone   Slope	    1.00    1.00	  Very limited   Slope   Depth to   saturated zone	      1.00    0.88	Very limited   Slope   Depth to   saturated zone   Gravel content	      1.00    0.93    0.34
100: Udorthents	     85 	    Not rated 	     	    Not rated 	     	    Not rated 	
101: Udorthents, refuse substratum	     90 	    Not rated 	   	    Not rated 	     	    Not rated 	

Table 19.-Landfills-Continued

Map symbol and soil name	Pct. of map unit	landfill		Area sanitary	Daily cover fo	r	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
102C: Mandy	40	  Very limited   Depth to bedrock   Slope	    1.00  0.04	  Very limited   Depth to bedrock   Slope	    1.00  0.04	  Very limited   Depth to bedrock   Gravel content   Slope	1.00  0.96  0.04
Rock outcrop	35	  Not rated 		  Not rated 		  Not rated 	
103C: Knapp Creek	   40     	  Very limited   Depth to bedrock   Seepage   Slope	  1.00  1.00  0.04	  Very limited   Seepage   Slope   Depth to bedrock	  1.00  0.04  0.01	   Very limited   Seepage   Gravel content   Slope   Depth to bedrock	1.00  0.72  0.04  0.01
Rock outcrop	35	  Not rated 		  Not rated 	   	  Not rated 	
104B: Flatiron	80	  Very limited   Seepage	1.00	  Very limited   Seepage	    1.00 	  Very limited   Seepage   Gravel content	1.00
104C: Flatiron	80	  Very limited   Seepage   Slope	  1.00  0.63	  Very limited   Seepage   Slope	  1.00  0.63	   Very limited   Seepage   Slope   Gravel content	1.00  0.63  0.03
104D: Flatiron	80	  Very limited   Slope   Seepage	  1.00  1.00	  Very limited   Slope   Seepage	    1.00  1.00	  Very limited   Slope   Seepage   Gravel content	1.00  1.00  0.03
104E: Flatiron	   80   	  Very limited   Slope   Seepage	  1.00  1.00	  Very limited   Slope   Seepage	  1.00  1.00	  Very limited   Slope   Seepage   Gravel content	1.00  1.00  0.03
108D: Hartleton	   85       	  Very limited   Slope   Depth to bedrock   Seepage	  1.00  1.00  1.00	  Very limited   Slope   Seepage   Depth to bedrock	  1.00  1.00  0.01	Very limited   Slope   Gravel content   Seepage   Depth to bedrock	1.00  0.90  0.22  0.01
108E: Hartleton	   85       	  Very limited   Slope   Depth to bedrock   Seepage	  1.00  1.00  1.00	  Very limited   Slope   Seepage   Depth to bedrock	  1.00  1.00  0.01	   Very limited   Slope   Gravel content   Seepage   Depth to bedrock	1.00  0.90  0.22  0.01
108F: Hartleton	   85       	  Very limited   Slope   Depth to bedrock   Seepage	  1.00  1.00  1.00	  Very limited   Slope   Seepage   Depth to bedrock	  1.00  1.00  0.01	   Very limited   Slope   Gravel content   Seepage   Depth to bedrock	1.00  0.90  0.22  0.01

Table 19.-Landfills-Continued

Map symbol and soil name	of map	map		Area sanitary		Daily cover fo	r
	unit   	Rating class and	Value	Rating class and	Value	Rating class and limiting features	Value
131: Lamson	     85     	  Very limited   Depth to   saturated zone   Seepage   Too sandy	  1.00    1.00  0.50	  Very limited   Depth to   saturated zone   Seepage	    1.00    1.00	Very limited Depth to saturated zone Too sandy Seepage	  1.00    0.50  0.21
132B: Wiscoy	     80   	  Very limited   Depth to   saturated zone   Too clayey	    1.00    0.50	  Very limited   Depth to   saturated zone	    1.00 	  Very limited   Depth to   saturated zone	    1.00 
132C: Wiscoy	   80     	  Very limited   Depth to   saturated zone   Slope   Too clayey	  1.00    0.63  0.50	  Very limited   Depth to   saturated zone   Slope	  1.00    0.63	   Very limited   Depth to   saturated zone   Slope	  1.00    0.63
135C: Hudson	   85       	  Very limited   Depth to   saturated zone   Slope	  1.00    0.63	  Very limited   Depth to   saturated zone   Slope	  1.00    0.63	Very limited   Too clayey   Hard to compact   Depth to   saturated zone   Slope	  1.00    1.00  0.98 
135D: Hudson	     85       	  Very limited   Depth to   saturated zone   Slope	    1.00    1.00	   Very limited   Slope     Depth to   saturated zone	    1.00    1.00	Slope 	         1.00     1.00     1.00     0.98
135E: Hudson	     85         	Very limited Depth to saturated zone Slope	1.00	   Very limited   Slope     Depth to   saturated zone	1.00	Saturated zone  Very limited Slope  Too clayey  Hard to compact Depth to saturated zone	   1.00   1.00   1.00   0.98
140D: Dunkirk	     85   	  Very limited   Slope   Too clayey	      1.00  0.50	  Very limited   Slope	      1.00	  Very limited   Slope   Too clayey	    1.00  0.50
140E: Dunkirk	     85   	  Very limited   Slope   Too clayey	    1.00  0.50	  Very limited   Slope 	1.00	   Very limited   Slope   Too clayey	  1.00  0.50

Table 19.-Landfills-Continued

Map symbol and soil name	Pct. of map unit	Trench sanitar landfill	У	Area sanitary		Daily cover fo	or
	unit	Rating class and limiting features	Value	Rating class and   limiting features	Value	Rating class and limiting features	Value
185C: Onoville	   85     	Very limited Depth to saturated zone Slope Too clayey	  1.00    0.63  0.50	  Very limited   Depth to   saturated zone   Slope	    1.00    0.63	   Very limited   Depth to   saturated zone   Slope   Too clayey	1.00
185D: Onoville	   85 	   Very limited   Depth to   saturated zone	1.00	  Very limited   Slope	1.00	  Very limited   Slope	1.00
	   	Slope     Too clayey	1.00    0.50	Depth to saturated zone	1.00   	Depth to saturated zone Too clayey	1.00    0.50
187B: Shongo	   80     	   Very limited   Depth to   saturated zone   Too clayey	    1.00    0.50	  Very limited   Depth to   saturated zone	      1.00   	   Very limited   Depth to   saturated zone   Too clayey   Gravel content	1.00
187C: Shongo	   80     	   Very limited   Depth to   saturated zone   Slope   Too clayey	  1.00    0.63  0.50	  Very limited   Depth to   saturated zone   Slope	    1.00    0.63	Very limited   Depth to   saturated zone   Slope   Too clayey   Gravel content	  1.00  0.63  0.50  0.10
188B: Cavode	     85     	Very limited  Depth to saturated zone Depth to bedrock Too clayey	    1.00    1.00	  Very limited   Depth to   saturated zone	      1.00   	Very limited   Depth to   saturated zone   Too clayey   Gravel content	1.00
188C: Cavode	   85       	Very limited  Depth to saturated zone Depth to bedrock Too clayey Slope	  1.00  1.00  1.00  0.63	  Very limited   Depth to   saturated zone   Slope	1.00	Very limited Depth to saturated zone Too clayey Slope Gravel content	1.00  1.00  0.63  0.11
188D: Cavode	     85   	  Very limited   Depth to   saturated zone   Slope	  1.00    1.00	  Very limited   Slope     Depth to	    1.00    1.00	  Very limited   Slope     Depth to	1.00
	     	Depth to bedrock Too clayey	1.00	saturated zone	   	saturated zone Too clayey Gravel content	1.00
189B: Portville	   80     	   Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone   Gravel content	1.00

Table 19.-Landfills-Continued

Map symbol and soil name	Pct. of map unit	landfill	У	Area sanitary		Daily cover fo	r
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
189C: Portville	   80     	   Very limited   Depth to   saturated zone   Slope	  1.00    0.63	saturated zone	  1.00    0.63	Very limited   Depth to   saturated zone   Slope   Gravel content	1.00  0.63  0.29
195C: Mandy	   85   	  Very limited   Depth to bedrock   Slope	1	: -		: -	1.00  0.96  0.04
195D: Mandy	   85   	  Very limited   Slope   Depth to bedrock	1.00	! -	1.00	  Very limited   Depth to bedrock   Slope   Gravel content	1.00 1.00 0.96
195E: Mandy	     85   	  Very limited   Slope   Depth to bedrock	1.00	  Very limited   Slope   Depth to bedrock	1.00	  Very limited   Depth to bedrock   Slope   Gravel content	1.00 1.00 0.96
199C: Buchanan	   85     	Very limited   Depth to   saturated zone   Slope	  1.00    0.63	saturated zone	  0.88    0.63	Somewhat limited   Depth to   saturated zone   Slope   Gravel content	0.93
199D: Buchanan	     85       	   Very limited   Depth to   saturated zone   Slope	    1.00    1.00	   Very limited   Slope     Depth to   saturated zone	      1.00    0.88		    1.00    0.93 
289B: Ceres	     85   	  Very limited   Depth to bedrock   Seepage	    1.00  1.00	  Very limited   Seepage   Depth to bedrock	    1.00  0.88		
289C: Ceres	     85     	  Very limited   Depth to bedrock   Seepage   Slope	    1.00  1.00  0.63	  Very limited   Seepage   Depth to bedrock   Slope	    1.00  0.88  0.63	  Somewhat limited   Depth to bedrock   Gravel content   Slope   Seepage	    0.88  0.85  0.63  0.22
289D: Ceres	   85       	   Very limited   Slope   Depth to bedrock   Seepage	    1.00  1.00  1.00	   Very limited   Slope   Seepage   Depth to bedrock	    1.00  1.00  0.88	   Very limited   Slope   Depth to bedrock   Gravel content   Seepage	  1.00  0.88  0.85  0.22

Table 19.-Landfills-Continued

Map symbol and soil name	Pct. of map unit	Trench sanitar	У	Area sanitary		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
289E: Ceres	85	   Very limited   Slope   Depth to bedrock   Seepage	  1.00  1.00  1.00	   Very limited   Slope   Seepage   Depth to bedrock	1.00	Very limited   Slope   Depth to bedrock   Gravel content   Seepage	  1.00  0.88  0.85  0.22
289F: Ceres	   85     	  Very limited   Slope   Depth to bedrock   Seepage	  1.00  1.00  1.00	  Very limited   Slope   Seepage   Depth to bedrock	  1.00  1.00  0.88	   Very limited   Slope   Depth to bedrock   Gravel content   Seepage	  1.00  0.88  0.85  0.22
400: Wakeville	   80     	  Very limited   Flooding   Depth to   saturated zone	1.00	  Very limited   Flooding     Depth to   saturated zone	1.00	  Very limited   Depth to   saturated zone	1.00
496B: Gilpin	   85       	Very limited Depth to saturated zone Depth to bedrock Too clayey	  1.00    1.00  0.50	   Very limited   Depth to   saturated zone   Depth to bedrock	1.00	Very limited Depth to bedrock Gravel content Depth to saturated zone Too clayey	  1.00    0.61  0.50 
496C: Gilpin	     85     	: <del>-</del>	    1.00  0.63  0.50	   Very limited   Depth to bedrock   Slope	  1.00  0.63	Very limited Depth to bedrock Slope Gravel content Too clayey	  1.00  0.63  0.61  0.50
496D: Gilpin	   85     	  Very limited   Slope   Depth to bedrock   Too clayey	    1.00  1.00  0.50	  Very limited   Slope   Depth to bedrock	  1.00  1.00	   Very limited   Depth to bedrock   Slope   Gravel content   Too clayey	  1.00  1.00  0.61  0.50
496E: Gilpin	   85     	  Very limited   Slope   Depth to bedrock   Too clayey	  1.00  1.00  0.50	  Very limited   Slope   Depth to bedrock	  1.00  1.00	   Very limited   Depth to bedrock   Slope   Gravel content   Too clayey	  1.00  1.00  0.61  0.50
496F: Gilpin	   85     	   Very limited   Slope   Depth to bedrock   Too clayey	  1.00  1.00  0.50	   Very limited   Slope   Depth to bedrock	1.00	Very limited Depth to bedrock Slope Gravel content Too clayey	1.00  1.00  0.61  0.50

Table 19.-Landfills-Continued

Map symbol and soil name	Pct. of map unit	landfill		Area sanitary landfill		Daily cover fo	or
	   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
497D: Rayne	     80 	  Very limited   Slope	1.00	    Very limited   Slope	1.00	   Very limited   Slope   Gravel content	1.00
497E: Rayne	     80   	  Very limited   Slope 	    1.00 	  Very limited   Slope 	1.00	  Very limited   Slope   Gravel content	1.00
497F: Rayne	   80   	  Very limited   Slope	1.00	  Very limited   Slope	1.00	Very limited   Slope   Gravel content	1.00
498E: Rayne	   80   	  Very limited   Slope	1.00	  Very limited   Slope	1.00	   Very limited   Slope   Gravel content	1.00
800: Holderton	   80     	Very limited Flooding Depth to saturated zone Seepage	  1.00    1.00    1.00	Very limited Flooding Depth to saturated zone Seepage	1.00	   Very limited   Depth to   saturated zone   Seepage	1.00
PG: Pits, gravel	     85	    Not rated		    Not rated	   	    Not rated	
Ur: Urban land	     85	    Not rated		    Not rated		    Not rated	
W: Water	    100	    Not rated 		    Not rated 		    Not rated 	

## Table 20.-Ponds and Embankments

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Pond reservoir ar	eas	Embankments, dikes   levees	, and	Aquifer-fed excavated pond	ls
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1: Udifluvents	     40   	  Very limited   Seepage	1.00	  Somewhat limited   Seepage	    0.86	   Very limited   Cutbanks cave   Depth to   saturated zone	1.00
Fluvaquents	   35     	  Very limited   Seepage 	  1.00   	  Very limited   Depth to   saturated zone   Seepage	  1.00    0.86	  Very limited   Cutbanks cave 	1.00
2: Hamlin	   85       	  Somewhat limited   Seepage 	    0.70     	  Very limited   Piping   	    1.00     	Somewhat limited   Depth to   saturated zone   Slow refill   Cutbanks cave	0.96
3: Tioga	   85     	   Very limited   Seepage	    1.00   	  Somewhat limited   Seepage	    0.01   	Somewhat limited Depth to saturated zone Cutbanks cave	0.96
4: Teel	   85     	  Very limited   Seepage	    1.00   	  Very limited   Depth to   saturated zone   Piping	  1.00    1.00	Somewhat limited Cutbanks cave	0.10
5: Wayland	   85   	  Not limited   	       	  Very limited   Depth to   saturated zone   Piping	1.00	Somewhat limited   Slow refill   Cutbanks cave	0.47
6A: Wyalusing	     85   	  Very limited   Seepage 	1.00	  Very limited   Depth to   saturated zone   Seepage	    1.00    0.07	  Very limited   Cutbanks cave 	1.00
7A: Philo	   85     	  Very limited   Seepage	1.00	  Very limited   Depth to   saturated zone   Seepage	1.00	  Somewhat limited   Cutbanks cave	0.10
8: Middlebury	   85     	  Very limited   Seepage 	1.00	  Very limited   Depth to   saturated zone   Piping   Seepage	  1.00    1.00  0.01	  Somewhat limited   Cutbanks cave	0.10

Table 20.—Ponds and Embankments—Continued

Map symbol and soil name	Pct. of map	   Pond reservoir ar 	eas	   Embankments, dikes   levees	, and	Aquifer-fed excavated pond	ls
	unit   	Rating class and limiting features	Value	Rating class and	Value	Rating class and limiting features	Value
9: Pawling	     85   	  Very limited   Seepage	    1.00 	  Very limited   Depth to   saturated zone   Seepage	    1.00    0.86	  Very limited   Cutbanks cave	1.00
10: Atkins	   85       	  Very limited   Seepage   	      1.00   	  Very limited   Depth to   saturated zone   Piping   Seepage	    1.00    1.00  0.03	  Somewhat limited   Cutbanks cave 	0.10
11B: Ischua	   85   	  Somewhat limited   Depth to bedrock       Seepage	    0.91    0.70	  Very limited   Depth to   saturated zone   Thin layer	    1.00    0.91	  Very limited   Depth to hard   bedrock   Slow refill	1.00
		Beepage   		Piping	0.88	Cutbanks cave	0.10
11C: Ischua	   85   	  Somewhat limited   Depth to bedrock     Seepage	    0.91    0.70	  Very limited   Depth to   saturated zone   Thin layer	    1.00    0.91	  Very limited   Depth to hard   bedrock   Slow refill	1.00
		Slope	0.01	Piping	0.88	Cutbanks cave	0.10
11D: Ischua	   85     	   Somewhat limited   Depth to bedrock     Seepage   Slope	  0.91    0.70  0.12	Very limited Depth to saturated zone Thin layer Piping	  1.00    0.91  0.88	   Very limited   Depth to hard   bedrock   Slow refill   Cutbanks cave	  1.00    0.30  0.10
11E: Ischua	     85 	    Somewhat limited   Depth to bedrock	      0.91	    Very limited   Depth to   saturated zone	      1.00	    Very limited   Depth to hard   bedrock	1.00
		Seepage Slope	0.70	Thin layer Piping	0.91	Slow refill Cutbanks cave	0.30
11F: Ischua	     85   	  Somewhat limited   Slope     Depth to bedrock	      0.94    0.91	  Very limited   Depth to   saturated zone   Thin layer	    1.00    0.91	  Very limited   Depth to hard   bedrock   Slow refill	1.00
		Seepage	0.70	Piping	0.88	Cutbanks cave	0.10
12B: Franklinville	   85     	  Somewhat limited   Seepage   	    0.70   	  Not limited     	         	Somewhat limited   Depth to   saturated zone   Slow refill   Cutbanks cave	  0.96    0.47  0.10
12C: Franklinville	     85   	  Somewhat limited   Seepage     Slope	      0.70    0.01	  Not limited   	         	  Somewhat limited   Depth to   saturated zone   Slow refill	0.96
				[ 	 	Cutbanks cave	0.10

Table 20.—Ponds and Embankments—Continued

Map symbol and soil name	Pct. of	Pond reservoir ar	eas	Embankments, dikes   levees	, and	Aquifer-fed excavated pond	s
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
12D: Franklinville	     85   	  Somewhat limited   Seepage   Slope	    0.70  0.12	  Not limited 	       	  Very limited   Depth to water	1.00
12E: Franklinville	     85   	  Somewhat limited   Seepage   Slope	      0.70  0.50	  Not limited 		  Very limited   Depth to water	1.00
14B: Hornellsville	   85     	  Somewhat limited   Depth to bedrock 	    0.05   	  Very limited   Depth to   saturated zone   Thin layer   Piping	  1.00    0.74  0.01	  Very limited   Slow refill     Cutbanks cave	1.00
14C: Hornellsville	     85 	  Somewhat limited   Depth to bedrock	      0.05	  Very limited   Depth to   saturated zone	      1.00	  Very limited   Slow refill	1.00
	[ [ [	Slope   	0.01	Thin layer   Piping 	0.74	Cutbanks cave	0.10
15B: Willdin	   85 	  Somewhat limited   Seepage	    0.70	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to water	1.00
15C: willdin	     85 	  Somewhat limited   Seepage	0.70	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to water	1.00
15D: Willdin	       85   	Slope    Somewhat limited   Seepage     Slope	0.01        0.70    0.12	  Very limited   Depth to   saturated zone	        1.00	    Very limited   Depth to water	1.00
16A: Almond	     80 	  Somewhat limited   Seepage	      0.53	   Very limited   Depth to   saturated zone	      1.00 		0.47
16B: Almond	       80 	    Somewhat limited   Seepage 	        0.53	Piping  Very limited  Depth to  saturated zone  Piping	0.87          1.00    0.87	Cutbanks cave	0.10
16C: Almond	     80 	    Somewhat limited   Seepage	0.53	   Very limited   Depth to	1.00	    Somewhat limited   Slow refill	0.47
		   Slope 	0.01	saturated zone   Piping 	0.87	   Cutbanks cave 	0.10

Table 20.—Ponds and Embankments—Continued

Map symbol and soil name	Pct. of map	Pond reservoir ar	Embankments, dikes levees	, and	Aquifer-fed excavated ponds		
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
17B: Salamanca	     80 	  Somewhat limited   Seepage	0.01	  Very limited   Depth to   saturated zone	    1.00	  Somewhat limited   Slow refill	0.99
	 			Piping 	0.88 	Cutbanks cave	0.10
17C: Salamanca	   80 	  Somewhat limited   Seepage	0.01	  Very limited   Depth to	    1.00	  Somewhat limited   Slow refill	0.99
		Slope	0.01	saturated zone Piping	0.88	Cutbanks cave	0.10
17D: Salamanca	     80 	    Somewhat limited   Slope	      0.12	    Very limited   Depth to	      1.00	    Somewhat limited   Slow refill	0.99
		   Seepage	0.01	saturated zone Piping	  0.88	Cutbanks cave	0.10
17E: Salamanca	     80	    Somewhat limited   Slope	      0.50	     Very limited   Depth to	      1.00	    Somewhat limited   Slow refill	0.99
		<u>-</u>		saturated zone	0.88	Cutbanks cave	0.10
		Seepage 	0.01	Piping 	0.88	Cutbanks cave	0.10
18A: Pope	   85 	  Very limited   Seepage	1.00	  Very limited   Piping	    1.00	  Very limited   Depth to water	1.00
19A: Olean	   85   	  Very limited   Seepage	1.00	   Very limited   Depth to   saturated zone   Seepage	    1.00    0.12	  Very limited   Cutbanks cave	1.00
19B: Olean	     85   	  Very limited   Seepage	      1.00	   Very limited   Depth to   saturated zone   Seepage	    1.00    0.12	  Very limited   Cutbanks cave	1.00
20A: Unadilla	     85 	    Very limited   Seepage	      1.00	   Very limited   Piping   Seepage	    1.00  0.03	     Very limited   Depth to water	1.00
20B: Unadilla	     85 	  Very limited   Seepage	1.00	  Very limited   Piping   Seepage	    1.00  0.03	  Very limited   Depth to water	1.00
20C: Unadilla	     85   	  Very limited   Seepage   Slope	    1.00  0.01	  Very limited   Piping   Seepage	    1.00  0.03	  Very limited   Depth to water	1.00
20D: Unadilla	     85   	  Very limited   Seepage   Slope	    1.00  0.12	  Very limited   Piping   Seepage	    1.00  0.03	  Very limited   Depth to water	1.00

Table 20.—Ponds and Embankments—Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir ar   	eas	Embankments, dikes   levees 	, and	Aquifer-fed excavated pond	ls
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
22A: Allard	     85 	  Very limited   Seepage	1.00	  Somewhat limited   Seepage	      0.86	    Very limited   Depth to water	1.00
22B: Allard	     85 	  Very limited   Seepage	1.00	  Somewhat limited   Seepage	    0.86	  Very limited   Depth to water	1.00
25A: Chenango	85	  Very limited   Seepage	1.00	  Somewhat limited   Seepage	    0.86	  Very limited   Depth to water	1.00
25B: Chenango	85	  Very limited   Seepage	1.00	  Somewhat limited   Seepage	0.86	  Very limited   Depth to water	1.00
25C: Chenango	   85 	  Very limited   Seepage   Slope	    1.00  0.01	  Somewhat limited   Seepage	0.86	  Very limited   Depth to water	1.00
25D: Chenango	     85 	  Very limited   Seepage   Slope	    1.00  0.12	  Somewhat limited   Seepage	    0.86	  Very limited   Depth to water	1.00
25E: Chenango	     80 	   Very limited   Seepage   Slope	      1.00  0.50	  Somewhat limited   Seepage	      0.86	  Very limited   Depth to water	1.00
25F: Chenango	     80 	  Very limited   Seepage   Slope	    1.00  0.94	  Somewhat limited   Seepage	      0.86	  Very limited   Depth to water	1.00
26A: Chenango, fan	   80   	  Very limited   Seepage   	    1.00 	  Somewhat limited   Seepage   	    0.12 	  Very limited   Cutbanks cave   Depth to   saturated zone	1.00
26B: Chenango, fan	     80   	  Very limited   Seepage	      1.00	  Somewhat limited   Seepage 	      0.12   	   Very limited   Cutbanks cave   Depth to   saturated zone	1.00
27A: Castile	   85   	  Very limited   Seepage	1.00	   Very limited   Depth to   saturated zone   Seepage	  1.00    0.86	  Very limited   Cutbanks cave	1.00
27B: Castile	   85   	  Very limited   Seepage	    1.00 	  Very limited   Depth to   saturated zone   Seepage	    1.00    0.86	  Very limited   Cutbanks cave	1.00

Table 20.—Ponds and Embankments—Continued

Map symbol and soil name	Pct.   Pond reservoir areas   of   map			Embankments, dikes	Aquifer-fed excavated pond	s	
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
28A: Scio	     85     	  Very limited   Seepage	      1.00   	   Very limited   Depth to   saturated zone   Piping   Seepage	    1.00    1.00  0.07	  Very limited   Cutbanks cave	1.00
29A: Chenango	     85 	  Very limited   Seepage	      1.00	  Somewhat limited   Seepage	0.12	    Very limited   Depth to water	1.00
29B: Chenango	   85 	  Very limited   Seepage	    1.00	  Somewhat limited   Seepage	    0.12	  Very limited   Depth to water	1.00
29C: Chenango	   85 	  Very limited   Seepage   Slope	    1.00  0.01	  Somewhat limited   Seepage	    0.12	  Very limited   Depth to water	1.00
29D: Chenango	     85   	  Very limited   Seepage   Slope	    1.00  0.12	  Somewhat limited   Seepage	0.12	  Very limited   Depth to water	1.00
29E: Chenango	     85   	  Very limited   Seepage   Slope	    1.00  0.50	  Somewhat limited   Seepage	      0.12	  Very limited   Depth to water 	1.00
31B: Collamer	   85 	  Somewhat limited   Seepage	    0.70	  Very limited   Depth to   saturated zone	1.00	  Somewhat limited   Cutbanks cave	0.50
31C: Collamer	     85   	  Somewhat limited   Seepage     Slope	      0.70    0.01	Piping  Very limited  Depth to  saturated zone  Piping	1.00      1.00    1.00	Slow refill    Somewhat limited   Cutbanks cave     Slow refill	0.30
32A: Churchville	     85 	  Not limited	       	Very limited   Depth to   saturated zone	      1.00 	Very limited   Cutbanks cave	1.00
32B: Churchville	       85   	  Not limited 		Piping    Very limited   Depth to   saturated zone   Piping	0.38          1.00    0.38	Slow refill 	0.30        1.00    0.30
33A: Wallington	     85     	  Not limited     	           	  Very limited   Depth to   saturated zone   Piping	    1.00    1.00	  Very limited   Depth to water   	1.00

Table 20.—Ponds and Embankments—Continued

Map symbol and soil name	Pct. of map unit		eas	Embankments, dikes   levees 	Embankments, dikes, and levees		s
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
34: Getzville	   80   	  Very limited   Seepage	1.00	  Very limited   Depth to   saturated zone   Seepage	  1.00    0.86	  Very limited   Cutbanks cave	1.00
35A: Rhinebeck	   80   	  Not limited 		  Very limited   Depth to   saturated zone   Piping	1.00	Very limited Slow refill Cutbanks cave	1.00
35B: Rhinebeck	     80   	  Not limited   		  Very limited   Depth to   saturated zone   Piping	    1.00    0.73	  Very limited   Slow refill   Cutbanks cave	1.00
35C: Rhinebeck	     80 	    Somewhat limited   Slope 	0.01	Very limited   Depth to   saturated zone   Piping	    1.00    0.73	   Very limited   Slow refill   Cutbanks cave	1.00
36: Canadice	     75 	    Not limited 		Very limited   Depth to   saturated zone   Hard to pack	        1.00    0.09		0.30
37A: Tonawanda	     80 	  Somewhat limited   Seepage 	0.53	  Very limited   Depth to   saturated zone   Piping	1.00	Somewhat limited Cutbanks cave	0.50
37B: Tonawanda	   80 	  Somewhat limited   Seepage	0.53	   Very limited   Depth to   saturated zone   Piping	1.00	Somewhat limited   Cutbanks cave	0.50
38A: Niagara	     85   	  Somewhat limited   Seepage	0.03	Very limited   Depth to   saturated zone   Piping	1.00	Somewhat limited Slow refill Cutbanks cave	0.97
38B: Niagara	     85   	  Somewhat limited   Seepage	0.03	Very limited Depth to saturated zone Piping	1.00	Somewhat limited Slow refill Cutbanks cave	0.97
39A: Halsey	   85     	     Very limited   Seepage 	1.00	   Very limited   Ponding   Depth to   saturated zone   Seepage	    1.00  1.00   	  Very limited   Cutbanks cave	1.00

Table 20.—Ponds and Embankments—Continued

Map symbol and soil name	Pct. of map	Pond reservoir ar	eas	Embankments, dikes	, and	Aquifer-fed excavated pond	ls
	unit   	Rating class and limiting features	Value	Rating class and	Value	Rating class and limiting features	Value
40A: Williamson	   85     	  Somewhat limited   Seepage	    0.70 	  Very limited   Depth to   saturated zone   Piping	  1.00    1.00	  Very limited   Depth to water	1.00
40B: Williamson	   85   	Somewhat limited   Seepage	    0.70   	  Very limited   Depth to   saturated zone   Piping	  1.00    1.00	Very limited Depth to water	1.00
40C: Williamson	   85     	Somewhat limited   Seepage     Slope	    0.70    0.01	  Very limited   Depth to   saturated zone   Piping	  1.00    1.00	  Very limited   Depth to water	1.00
41A: Barcelona	     85     	  Somewhat limited   Seepage     Depth to bedrock	0.53	Very limited Depth to saturated zone Piping Thin layer	    1.00    1.00  0.22	  Somewhat limited   Slow refill   Cutbanks cave	0.47
41B: Barcelona	     85     	  Somewhat limited   Seepage     Depth to bedrock	      0.53    0.01	  Very limited   Depth to   saturated zone   Piping   Thin layer	    1.00    1.00  0.22	  Somewhat limited   Slow refill     Cutbanks cave	0.47
42A: Elnora	     80   	    Very limited   Seepage 	      1.00	  Very limited   Depth to   saturated zone   Seepage	    1.00    0.36	   Very limited   Cutbanks cave	1.00
42B: Elnora	     80   	  Very limited   Seepage 	1.00	  Very limited   Depth to   saturated zone   Seepage	    1.00    0.36	  Very limited   Cutbanks cave	1.00
43: Canandaigua, silt loam	     80     	  Somewhat limited   Seepage 	0.03	  Very limited   Ponding   Depth to   saturated zone   Piping	    1.00  1.00    1.00	  Somewhat limited   Slow refill   Cutbanks cave	0.30
44: Canandaigua, mucky silt loam	   85       	  Somewhat limited   Seepage   	0.03	  Very limited   Ponding   Depth to   saturated zone   Piping	    1.00  1.00    1.00	  Somewhat limited   Slow refill   Cutbanks cave	    0.30  0.10

Table 20.—Ponds and Embankments—Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir ar	eas	Embankments, dikes	, and	Aquifer-fed excavated pond	s
	unit	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
45: Canandaigua, acid substratum	       80   	  Somewhat limited   Seepage	0.03	   Very limited   Ponding   Depth to   saturated zone   Piping	  1.00  1.00    1.00	  Somewhat limited   Slow refill   Cutbanks cave	      0.30  0.10
46: Swormville	     85     	  Very limited   Seepage	1.00	  Very limited   Depth to   saturated zone   Seepage	    1.00    0.86	  Very limited   Cutbanks cave	1.00
47A: Minoa	   80     	  Very limited   Seepage	    1.00   	Very limited   Depth to   saturated zone   Seepage	    1.00    0.01	  Very limited   Cutbanks cave	1.00
48A: Colonie	   80 	  Very limited   Seepage	1.00	  Somewhat limited   Seepage	0.36	  Very limited   Depth to water	1.00
48B: Colonie	     80 	  Very limited   Seepage	1.00	  Somewhat limited   Seepage	0.36	    Very limited   Depth to water	1.00
48C: Colonie	   80   	  Very limited   Seepage   Slope	1.00	  Somewhat limited   Seepage	    0.36 	  Very limited   Depth to water	1.00
49A: Red Hook	   85   	  Very limited   Seepage	    1.00 	   Very limited   Depth to   saturated zone   Seepage	  1.00    0.03	  Very limited   Cutbanks cave	1.00
50A: Canaseraga	   85   	Somewhat limited   Seepage	    0.70 	   Very limited   Depth to   saturated zone   Piping	  1.00    1.00	  Very limited   Depth to water	1.00
50B: Canaseraga	     85   	  Somewhat limited   Seepage	    0.70 	   Very limited   Depth to   saturated zone   Piping	1.00	  Very limited   Depth to water	1.00
50C: Canaseraga	     85 	  Somewhat limited   Seepage     Slope	    0.70    0.01	  Very limited   Depth to   saturated zone   Piping	  1.00    1.00	  Very limited   Depth to water	1.00

Table 20.—Ponds and Embankments—Continued

Map symbol and soil name	Pct. of map unit		eas	   Embankments, dikes   levees	, and	Aquifer-fed excavated pond	ls
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
51B: Chadakoin	     85       	  Somewhat limited   Seepage 	      0.70   	  Not limited   	           	   Somewhat limited   Depth to   saturated zone   Slow refill   Cutbanks cave	0.81
51C: Chadakoin	   85       	  Somewhat limited   Seepage     Slope	0.70	  Not limited   	         	Somewhat limited   Depth to   saturated zone   Slow refill   Cutbanks cave	0.81
51D: Chadakoin	   85 	  Somewhat limited   Seepage   Slope	    0.70  0.12	  Not limited 	       	  Very limited   Depth to water	1.00
51E: Chadakoin	     85   	  Somewhat limited   Seepage   Slope	    0.70  0.50	  Not limited 	       	  Very limited   Depth to water	1.00
51F: Chadakoin	   85 	  Somewhat limited   Slope   Seepage	    0.94  0.70	  Not limited 	       	  Very limited   Depth to water	1.00
52B: Valois	     85 	  Very limited   Seepage	1.00	  Somewhat limited   Seepage	      0.03	    Very limited   Depth to water 	1.00
52C: Valois	   85   	  Very limited   Seepage   Slope	1.00	  Somewhat limited   Seepage 	0.03	  Very limited   Depth to water 	1.00
52D: Valois	   80 	  Very limited   Seepage   Slope	  1.00  0.12	  Somewhat limited   Seepage	0.03	  Very limited   Depth to water	1.00
52E: Valois	     80 	  Very limited   Seepage   Slope	    1.00  0.50	  Somewhat limited   Seepage	      0.03	  Very limited   Depth to water	1.00
52F: Valois	     80   	  Very limited   Seepage   Slope	      1.00  0.94	  Somewhat limited   Seepage 	      0.03	  Very limited   Depth to water 	1.00

Table 20.-Ponds and Embankments-Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir ar   	eas	Embankments, dikes   levees 	, and	Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
53C: Valois	30	     Very limited   Seepage	1.00	     Somewhat limited   Seepage	0.03	     Very limited   Depth to water	1.00
Volusia	25	  Not limited 		  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to water	1.00
Mardin	   20   	  Not limited   		   Very limited   Depth to   saturated zone   Piping	1.00	  Very limited   Depth to water 	1.00
55A: Darien	   85   	  Somewhat limited   Seepage 	0.03	   Very limited   Depth to   saturated zone   Piping	  1.00    1.00	  Very limited   Cutbanks cave     Slow refill	1.00
55B: Darien	     85   	  Somewhat limited   Seepage 	      0.03	  Very limited   Depth to   saturated zone   Piping	      1.00 	  Very limited   Cutbanks cave     Slow refill	1.00
55C: Darien	     85   	  Somewhat limited   Seepage     Slope	      0.03    0.01	  Very limited   Depth to   saturated zone   Piping	      1.00    1.00	  Very limited   Cutbanks cave     Slow refill	1.00
56B: Chautauqua	     80   	    Somewhat limited   Seepage 	      0.70	  Very limited   Depth to   saturated zone	      1.00	  Very limited   Cutbanks cave     Slow refill	1.00
56C: Chautauqua	     80 	  Somewhat limited   Seepage     Slope	    0.70    0.01	    Very limited   Depth to   saturated zone	      1.00	  Very limited   Cutbanks cave     Slow refill	1.00
56D: Chautauqua	     80 	  Somewhat limited   Seepage     Slope	      0.70    0.12	  Very limited   Depth to   saturated zone	      1.00	  Very limited   Cutbanks cave     Slow refill	1.00
57A: Busti	     80   	    Somewhat limited   Seepage 	      0.53 	  Very limited   Depth to   saturated zone	      1.00 	  Very limited   Cutbanks cave     Slow refill	1.00
57B: Busti	     80   	  Somewhat limited   Seepage 	      0.53	  Very limited   Depth to   saturated zone	      1.00 	  Very limited   Cutbanks cave     Slow refill	1.00

Table 20.—Ponds and Embankments—Continued

Map symbol and soil name	Pct.   Pond reservoir areas   of     map			Embankments, dikes   levees	Aquifer-fed   excavated ponds 		
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
57C: Busti	     80 	  Somewhat limited   Seepage	0.53	  Very limited   Depth to   saturated zone	1.00	    Very limited   Cutbanks cave	1.00
	į į	Slope	0.01	j I	İ	Slow refill	0.47
58B: Rushford	   80   	  Somewhat limited   Seepage	    0.70 	  Very limited   Depth to   saturated zone   Piping	    1.00    1.00	   Very limited   Depth to water	1.00
58C: Rushford	     80   	  Somewhat limited   Seepage     Slope	      0.70    0.01	  Very limited   Depth to   saturated zone   Piping	      1.00    1.00	    Very limited   Depth to water	1.00
59B: Yorkshire	       85   	 		Piping	        1.00    1.00	  Very limited   Depth to water	1.00
59C: Yorkshire	     85   	  Somewhat limited   Slope	      0.01	Very limited   Depth to   saturated zone   Piping	    1.00    1.00	  Very limited   Depth to water	1.00
59D: Yorkshire	   85   	  Somewhat limited   Slope 	    0.12   	Very limited   Depth to   saturated zone   Piping	1.00	  Very limited   Depth to water	1.00
60A: Napoli	     80   	  Somewhat limited   Seepage 	    0.53 	  Very limited   Depth to   saturated zone   Piping	    1.00    0.95	  Very limited   Depth to water	1.00
60B: Napoli	     80   	  Somewhat limited   Seepage	      0.53	  Very limited   Depth to   saturated zone   Piping	    1.00    0.95	  Very limited   Depth to water	1.00
60C: Napoli	     80   	  Somewhat limited   Seepage     Slope	      0.53    0.01	     Very limited   Depth to   saturated zone   Piping	      1.00    0.95	  Very limited   Depth to water	1.00
60D: Napoli	     80 	    Somewhat limited   Seepage	      0.53	  Very limited   Depth to   saturated zone	      1.00    0.95	  Very limited   Depth to water	1.00

Table 20.—Ponds and Embankments—Continued

Map symbol and soil name	Pct. Pond reservoir areas of map unit		eas	Embankments, dikes   levees	Aquifer-fed excavated pond	s	
	unit	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
61B: Schuyler	     80   	     Somewhat limited   Seepage 	      0.53	     Very limited   Depth to   saturated zone   Piping	      1.00    0.88	  Somewhat limited   Slow refill   Cutbanks cave	    0.47    0.10
61C: Schuyler	     80	    Somewhat limited	   	      Very limited		    Somewhat limited	
	   	Seepage     Slope	0.53    0.01	Depth to   saturated zone   Piping	1.00    0.88	Slow refill Cutbanks cave	0.47    0.10
61D: Schuyler	     80 	    Somewhat limited   Seepage	      0.53	    Very limited   Depth to	      1.00	    Somewhat limited   Slow refill	0.47
	   	   Slope 	  0.12 	saturated zone Piping	  0.88 	   Cutbanks cave 	0.10
61E: Schuyler	   80 	  Somewhat limited   Seepage	    0.53	  Very limited   Depth to   saturated zone	    1.00	  Somewhat limited   Slow refill	0.47
	į Į	Slope	0.50	Piping	0.88	Cutbanks cave	0.10
61F: Schuyler	   80 	  Somewhat limited   Slope 	    0.94	  Very limited   Depth to   saturated zone	    1.00	  Somewhat limited   Slow refill 	0.47
62B:	 	Seepage	0.53	Piping	0.88	Cutbanks cave	0.10
Mardin	85     	Not limited	     	Very limited   Depth to   saturated zone   Piping	  1.00    1.00	Very limited   Depth to water   	1.00
62C: Mardin	   85   	  Somewhat limited   Slope	    0.01 	  Very limited   Depth to   saturated zone   Piping	1.00	  Very limited   Depth to water	1.00
62D: Mardin	     85	    Somewhat limited	   	    Very limited		    Very limited	
	     	   Slope 	  0.12   	Depth to saturated zone Piping	1.00	Depth to water	1.00
63B: Langford	     85     	  Somewhat limited   Seepage	    0.70 	  Very limited   Depth to   saturated zone   Piping	    1.00    0.99	  Very limited   Depth to water	1.00
63C: Langford	     85     	  Somewhat limited   Seepage     Slope	    0.70    0.01	  Very limited   Depth to   saturated zone   Piping	    1.00    0.99	  Very limited   Depth to water 	1.00

Table 20.—Ponds and Embankments—Continued

Map symbol and soil name	Pct. of map	Pond reservoir ar	eas	Embankments, dikes   levees	, and	Aquifer-fed excavated pond	s
	unit   	Rating class and	Value	Rating class and	Value	Rating class and limiting features	Value
63D: Langford	     85   	  Somewhat limited   Seepage     Slope	    0.70    0.12	  Very limited   Depth to   saturated zone   Piping	    1.00    0.99	  Very limited   Depth to water	1.00
64C: Mardin	   85   	    Somewhat limited   Slope 	      0.01	  Very limited   Depth to   saturated zone   Piping	    1.00    1.00	  Very limited   Depth to water	      1.00
66B: Volusia	     80   	  Not limited 	       	  Very limited   Depth to   saturated zone	      1.00	  Very limited   Depth to water	1.00
67A: Dalton	     80   	  Not limited   	         	Very limited Depth to saturated zone Piping	    1.00    1.00	  Very limited   Depth to water 	1.00
67B: Dalton	   80   	  Not limited  -	       	  Very limited   Depth to   saturated zone   Piping	    1.00    1.00	  Very limited   Depth to water	    1.00 
68A: Volusia	   80 	  Not limited 	     	Very limited   Depth to   saturated zone		  Very limited   Depth to water	    1.00
68B: Volusia	     80 	  Not limited 	       	  Very limited   Depth to   saturated zone	    1.00	  Very limited   Depth to water	1.00
68C: Volusia	     80 	  Somewhat limited   Slope	    0.01	  Very limited   Depth to   saturated zone	    1.00	  Very limited   Depth to water	1.00
69A: Erie	     80   	  Not limited   	         	  Very limited   Depth to   saturated zone   Piping	    1.00    0.95	  Very limited   Depth to water 	1.00
69B: Erie	     80   	  Not limited   	         	  Very limited   Depth to   saturated zone   Piping	    1.00    0.95	  Very limited   Depth to water	1.00
69C: Erie	   80     	  Somewhat limited   Slope 	    0.01 	  Very limited   Depth to   saturated zone   Piping	    1.00    0.95	  Very limited   Depth to water	1.00

Table 20.—Ponds and Embankments—Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir ar	eas	Embankments, dikes	, and	Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
71E: Mongaup	   85   	  Somewhat limited   Depth to bedrock   Seepage   Slope	    0.93  0.70  0.50	  Somewhat limited   Thin layer 	    0.93 	  Very limited   Depth to water 	1.00
71F: Mongaup	   85     	   Very limited   Slope   Depth to bedrock   Seepage	  1.00  0.93  0.70	  Somewhat limited   Thin layer 	    0.93   	  Very limited   Depth to water	1.00
72B: Towerville	   80   	Somewhat limited   Depth to bedrock   Seepage	  0.81    0.70	  Very limited   Depth to   saturated zone   Piping	1.00	   Very limited   Depth to hard   bedrock   Slow refill	1.00
72C: Towerville	       80     	   Somewhat limited   Depth to bedrock     Seepage   Slope	        0.81    0.70  0.01	Thin layer  Very limited  Depth to  saturated zone  Piping  Thin layer	0.81      1.00    0.88  0.81	Cutbanks cave  Very limited Depth to hard bedrock Slow refill Cutbanks cave	0.10       1.00     0.30   0.10
72D: Towerville	     80     	Somewhat limited   Depth to bedrock     Seepage   Slope	      0.81    0.70  0.12	  Very limited   Depth to   saturated zone   Piping   Thin layer	    1.00    0.88  0.81	  Very limited   Depth to hard   bedrock   Slow refill   Cutbanks cave	1.00
72E: Towerville	     80     	  Somewhat limited   Depth to bedrock     Seepage   Slope	    0.81    0.70  0.50	  Very limited   Depth to   saturated zone   Piping   Thin layer	    1.00    0.88  0.81	   Very limited   Depth to hard   bedrock   Slow refill   Cutbanks cave	  1.00    0.30  0.10
72F: Towerville	     80     	  Somewhat limited   Slope     Depth to bedrock   Seepage	    0.94    0.81  0.70	   Very limited   Depth to   saturated zone   Piping   Thin layer	    1.00    0.88  0.81	   Very limited   Depth to hard   bedrock   Slow refill   Cutbanks cave	  1.00  0.30  0.10
73B: Gretor	     80   	  Somewhat limited   Depth to bedrock     Seepage	0.96	  Very limited   Depth to   saturated zone   Thin layer   Piping	    1.00    0.96  0.81	   Very limited   Depth to hard   bedrock   Slow refill   Cutbanks cave	  1.00    0.97  0.10
73C: Gretor	     80     	Somewhat limited   Depth to bedrock     Seepage   Slope	    0.96    0.03  0.01	   Very limited   Depth to   saturated zone   Thin layer   Piping	    1.00    0.96  0.81	Very limited Depth to hard bedrock Slow refill Cutbanks cave	  1.00    0.97  0.10

Table 20.—Ponds and Embankments—Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir ar	eas	Embankments, dikes   levees	, and	Aquifer-fed excavated pond	ls
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
74: Ashville	     80   	  Somewhat limited   Seepage 	      0.03	  Very limited   Depth to   saturated zone   Piping	    1.00    1.00	  Somewhat limited   Slow refill     Cutbanks cave	0.30
75:		 		]		 	
Alden	85         	Somewhat limited   Seepage	0.03	Very limited Ponding Depth to saturated zone Piping Seepage	  1.00  1.00    1.00  0.01	Very limited Cutbanks cave Slow refill	1.00
76A: Orpark	   80   		    0.95    0.02	  Very limited   Depth to   saturated zone	    1.00    0.99	   Very limited   Depth to hard   bedrock   Slow refill	1.00
		Seepage 	0.02	Piping   Thin layer	0.95	Cutbanks cave	0.98
76B: Orpark	     80 	    Somewhat limited   Depth to bedrock	0.95	    Very limited   Depth to	1.00	    Very limited   Depth to hard	1.00
	   	   Seepage 	0.02	saturated zone Piping Thin layer	0.99	bedrock   Slow refill   Cutbanks cave	0.98
76C: Orpark	     80 	  Somewhat limited   Depth to bedrock	0.95	  Very limited   Depth to   saturated zone	1.00	    Very limited   Depth to hard   bedrock	1.00
	İ	Seepage   Slope	0.02	Piping Thin layer	0.99	Slow refill Cutbanks cave	0.98
77A: Chippewa	     80   	  Not limited 		  Very limited   Depth to   saturated zone   Piping	    1.00    1.00	  Very limited   Depth to water	1.00
78A: Hornell	     80 	  Somewhat limited   Depth to bedrock	0.05	  Very limited   Depth to   saturated zone	1.00	  Very limited   Slow refill	1.00
				Thin layer Piping	0.74	Cutbanks cave	0.10
78B: Hornell	     80 	  Somewhat limited   Depth to bedrock	0.05	    Very limited   Depth to   saturated zone	1.00	  Very limited   Slow refill	1.00
	 			saturated zone   Thin layer   Piping	0.74	Cutbanks cave	0.10
78C: Hornell	     80 	    Somewhat limited   Depth to bedrock	0.05	    Very limited   Depth to	      1.00	    Very limited   Slow refill	1.00
	   	Slope	0.01	saturated zone Thin layer Piping	0.74	Cutbanks cave	0.10

Table 20.—Ponds and Embankments—Continued

Map symbol and soil name	Pct. of map unit		eas	Embankments, dikes, and   levees		Aquifer-fed excavated ponds	
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
78D: Hornell	     80 	  Somewhat limited   Slope 	      0.12	  Very limited   Depth to   saturated zone	1.00	  Very limited   Slow refill	1.00
	į Į	Depth to bedrock	0.05	Thin layer Piping	0.74	Cutbanks cave	0.10
78F: Hornell	40	  Somewhat limited   Slope	0.94	! -	1.00	  Very limited   Slow refill	1.00
	   	Depth to bedrock	0.05	saturated zone Thin layer Piping	0.74	   Cutbanks cave 	0.10
Hudson	   35   	  Somewhat limited   Slope	    0.94 	saturated zone	1.00	Very limited   Slow refill	1.00
79B: Mongaup	     85 	! · · · · · · · · · · · · · · · · · · ·	    0.93  0.70	Hard to pack    Somewhat limited   Thin layer	0.07      0.93	Cutbanks cave  Very limited  Depth to water	0.50
79C: Mongaup	     85   	  Somewhat limited   Depth to bedrock   Seepage   Slope	  0.93  0.70  0.01	   Somewhat limited   Thin layer	      0.93	  Very limited   Depth to water	1.00
79D: Mongaup	     85   	  Somewhat limited   Depth to bedrock   Seepage   Slope	  0.93  0.70  0.12	  Somewhat limited   Thin layer	      0.93	  Very limited   Depth to water	1.00
79E: Mongaup	     85   	  Somewhat limited   Depth to bedrock   Seepage   Slope	    0.93  0.70  0.50	  Somewhat limited   Thin layer	      0.93	  Very limited   Depth to water	1.00
79F: Mongaup	     85   	  Very limited   Slope   Depth to bedrock   Seepage	    1.00  0.93  0.70	  Somewhat limited   Thin layer	      0.93	  Very limited   Depth to water	1.00
80A: Fremont	     80 	  Somewhat limited   Seepage	      0.53	Very limited  Depth to  saturated zone	1.00	  Somewhat limited   Slow refill	0.47
80B: Fremont	       80	    Somewhat limited   Seepage	0.53	Piping 	0.85          1.00	Cutbanks cave         Somewhat limited   Slow refill	0.10
				saturated zone   Piping 	0.85	   Cutbanks cave 	0.10

Table 20.—Ponds and Embankments—Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir ar	eas	   Embankments, dikes   levees	, and	Aquifer-fed excavated ponds	
	unit	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
80C: Fremont	   80   	  Somewhat limited   Seepage     Slope	    0.53    0.01	  Very limited   Depth to   saturated zone   Piping	    1.00    0.85	   Somewhat limited   Slow refill     Cutbanks cave	0.47
81B: Varysburg	   85   	  Very limited   Seepage 	    1.00 	  Very limited   Piping   Depth to   saturated zone	    1.00  0.99	   Very limited   Cutbanks cave   Depth to   saturated zone	1.00
81C: Varysburg	   85   	  Very limited   Seepage   Slope	    1.00  0.01	Very limited Piping Depth to saturated zone	    1.00  0.99	   Very limited   Cutbanks cave   Depth to   saturated zone	1.00
81D: Varysburg	   85   	Very limited   Seepage   Slope	  1.00  0.12 	  Very limited   Piping   Depth to   saturated zone	    1.00  0.99 	Very limited Cutbanks cave Depth to saturated zone	1.00
81E: Varysburg	   85   	   Very limited   Seepage   Slope	    1.00  0.50 	  Very limited   Piping   Depth to   saturated zone	    1.00  0.99 	Very limited Cutbanks cave Depth to saturated zone	1.00
82F: Rock outcrop	50	  Very limited   Depth to bedrock   Slope	  1.00  1.00	  Not rated 	     	  Not rated 	
Manlius	30	  Very limited   Slope   Seepage   Depth to bedrock	  1.00  1.00  0.74	  Somewhat limited   Thin layer   	    0.74   	  Very limited   Depth to water 	1.00
84B: Elko	   85   	  Somewhat limited   Seepage	    0.70 	  Very limited   Depth to   saturated zone	    1.00 	  Very limited   Depth to water	    1.00 
84C: Elko	   85   	  Somewhat limited   Seepage     Slope	    0.70    0.01	  Very limited   Depth to   saturated zone	    1.00 	  Very limited   Depth to water 	1.00
85B: Onoville	   85     	  Somewhat limited   Seepage 	      0.70   	  Very limited   Depth to   saturated zone   Piping	    1.00    0.73	  Very limited   Depth to water 	    1.00 
85C: Onoville	   85     	  Somewhat limited   Seepage     Slope	    0.70    0.01	  Very limited   Depth to   saturated zone   Piping	  1.00    0.73	   Very limited   Depth to water	  1.00 

Table 20.—Ponds and Embankments—Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir ar	eas	Embankments, dikes	, and	Aquifer-fed excavated pond	ls
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and   limiting features	Value
85D: Onoville	   85   	  Somewhat limited   Seepage     Slope	    0.70    0.12	  Very limited   Depth to   saturated zone   Piping	    1.00    0.73	  Very limited   Depth to water	1.00
		510pc					
86B: Eldred	   85 	  Somewhat limited   Seepage 	0.03	  Very limited   Depth to   saturated zone	    1.00	  Somewhat limited   Slow refill 	0.97
	į		İ	Piping	0.98	Cutbanks cave	0.10
86C: Eldred	   85 	  Somewhat limited   Seepage	0.03	  Very limited   Depth to   saturated zone	    1.00	  Somewhat limited   Slow refill	0.97
		Slope	0.01	Piping	0.98	Cutbanks cave	0.10
86D: Eldred	     85 	    Somewhat limited   Slope	0.12	    Very limited   Depth to	      1.00	    Somewhat limited   Slow refill	0.97
	 	   Seepage	0.03	saturated zone Piping	0.98	Cutbanks cave	0.10
87B: Shongo	   80   	    Somewhat limited   Seepage   	      0.53	  Very limited   Depth to   saturated zone   Piping	    1.00    0.78	   Very limited   Depth to water	1.00
87C: Shongo	     80   	  Somewhat limited   Seepage     Slope	0.53	  Very limited   Depth to   saturated zone   Piping	    1.00    0.78	  Very limited   Depth to water	1.00
88A: Ivory	     85 	  Not limited 		    Very limited   Depth to   saturated zone	      1.00	  Somewhat limited   Slow refill	0.97
	İ		į	Piping	0.17	Cutbanks cave	0.10
88B: Ivory	     85 	  Not limited 		    Very limited   Depth to   saturated zone	      1.00	  Somewhat limited   Slow refill	0.97
				Piping	0.17	Cutbanks cave	0.10
88C: Ivory	     85 	  Somewhat limited   Slope	      0.01	    Very limited   Depth to   saturated zone	      1.00	  Somewhat limited   Slow refill	0.97
				Piping 	0.17	Cutbanks cave	0.10
88D: Ivory	   85 	  Somewhat limited   Slope	0.12	  Very limited   Depth to   saturated zone	    1.00	  Somewhat limited   Slow refill	0.97
		 		Piping	0.17	Cutbanks cave	0.10

Table 20.—Ponds and Embankments—Continued

Map symbol and soil name	Pct. of map	Pond reservoir ar	eas	Embankments, dikes   levees	, and	Aquifer-fed excavated pond	ls
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
89B: Portville	   80     	  Somewhat limited   Seepage	0.53	  Very limited   Depth to   saturated zone   Piping	1.00	  Very limited   Depth to water	1.00
89C: Portville	   80 	  Somewhat limited   Seepage	0.53	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to water	1.00
90A: Brinkerton	     85   	Slope    Somewhat limited   Seepage 	0.01      0.03	Piping    Very limited   Depth to   saturated zone   Piping	0.76      1.00    0.79	  Very limited   Depth to water	1.00
90B: Brinkerton	     85     	  Somewhat limited   Seepage 	0.03	  Very limited   Depth to   saturated zone   Piping	    1.00    0.79	  Very limited   Depth to water	1.00
91A: Palms	   85     	   Very limited   Seepage 	    1.00   	  Very limited   Ponding   Depth to   saturated zone   Piping	  1.00  1.00 	   Very limited   Cutbanks cave	1.00
92: Carlisle	   85         	  Very limited   Seepage 	    1.00     	   Very limited   Organic matter   content   Ponding   Depth to   saturated zone   Piping	  1.00  1.00  1.00  1.00	  Very limited   Cutbanks cave 	1.00
93: Saprists, inundated-	   85       	  Very limited   Seepage 	1.00	  Very limited   Ponding   Depth to   saturated zone   Piping	  1.00  1.00    1.00	  Very limited   Cutbanks cave 	1.00
94B: Frewsburg	   80     	  Somewhat limited   Depth to bedrock   Seepage	    0.56    0.53	Very limited Depth to saturated zone Piping Thin layer	  1.00    0.95  0.56	   Very limited   Depth to hard   bedrock   Slow refill   Cutbanks cave	  1.00    0.47  0.10
94C: Frewsburg	   80       	  Somewhat limited   Depth to bedrock     Seepage   Slope	  0.56    0.53  0.01	  Very limited   Depth to   saturated zone   Piping   Thin layer	  1.00    0.95  0.56	   Very limited   Depth to hard   bedrock   Slow refill   Cutbanks cave	  1.00    0.47  0.10

Table 20.—Ponds and Embankments—Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir ar	eas	Embankments, dikes   levees	, and	Aquifer-fed excavated ponds			
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value		
95B: Mandy	     85   	  Somewhat limited   Depth to bedrock   Seepage	    0.77  0.70	  Somewhat limited   Thin layer	0.77	  Very limited   Depth to water	1.00		
95C: Mandy	     85   	Somewhat limited Depth to bedrock Seepage Slope	  0.77  0.70  0.01	  Somewhat limited   Thin layer 	0.77	  Very limited   Depth to water 	1.00		
95D: Mandy	   85     	   Somewhat limited   Depth to bedrock   Seepage   Slope	  0.77  0.70  0.12	   Somewhat limited   Thin layer   	0.77	  Very limited   Depth to water   	1.00		
95E: Mandy	   85   	Somewhat limited   Depth to bedrock   Seepage   Slope	  0.77  0.70  0.50	  Somewhat limited   Thin layer	0.77	  Very limited   Depth to water	1.00		
95F: Mandy	   85   	Somewhat limited   Slope   Depth to bedrock   Seepage	  0.94  0.77  0.70	  Somewhat limited   Thin layer	0.77	  Very limited   Depth to water	1.00		
96B: Carrollton	   80         	Somewhat limited   Depth to bedrock     Seepage	  0.86    0.70	   Very limited   Piping     Depth to   saturated zone   Thin layer	  1.00    0.87    0.86	Very limited   Depth to hard   bedrock   Slow refill   Cutbanks cave   Depth to   saturated zone	1.00   0.30   0.10   0.06		
96C: Carrollton	     80   	Somewhat limited Depth to bedrock Seepage Slope	  0.86  0.70  0.01	  Very limited   Piping   Thin layer	1.00	  Very limited   Depth to water	1.00		
96D: Carrollton	     80   	  Somewhat limited   Depth to bedrock   Seepage   Slope	  0.86  0.70  0.12	  Very limited   Piping   Thin layer	1.00	  Very limited   Depth to water   	1.00		
96E: Carrollton	   80   	Somewhat limited   Depth to bedrock   Seepage   Slope	  0.86  0.70  0.50	  Very limited   Piping   Thin layer	1.00	  Very limited   Depth to water	1.00		
96F: Carrollton	   80     	Somewhat limited   Slope   Depth to bedrock   Seepage	  0.94  0.86  0.70	  Very limited   Piping   Thin layer	1.00	  Very limited   Depth to water	1.00		

Table 20.—Ponds and Embankments—Continued

Map symbol and soil name	Pct. of map	Pond reservoir ar	eas	   Embankments, dikes   levees	, and	Aquifer-fed excavated pond	s
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
97B: Kinzua	     85 	  Somewhat limited   Seepage	      0.70	  Not limited 	       	  Very limited   Depth to water   Slow refill	    1.00  0.97
97C: Kinzua	     85   	  Somewhat limited   Seepage   Slope	    0.70  0.01	  Not limited   	       	  Very limited   Depth to water   Slow refill	  1.00  0.97
97D: Kinzua	   85 	  Somewhat limited   Seepage   Slope	    0.70  0.12	  Not limited 	       	  Very limited   Depth to water	1.00
97E: Kinzua	     85   	  Somewhat limited   Seepage   Slope	    0.70  0.50	  Not limited 	       	  Very limited   Depth to water	1.00
97F: Kinzua	     85   	  Somewhat limited   Slope   Seepage	      0.99  0.70	  Not limited 	       	  Very limited   Depth to water	1.00
98D: Kinzua	     85   	  Somewhat limited   Seepage   Slope	    0.70  0.12	  Not limited 	       	  Very limited   Depth to water	1.00
98E: Kinzua	     85   	  Somewhat limited   Seepage   Slope	    0.70  0.50	  Not limited 	       	  Very limited   Depth to water	1.00
99B: Buchanan	     85   	  Somewhat limited   Seepage	    0.70	  Very limited   Depth to   saturated zone	1.00	  Very limited   Depth to water	1.00
99C: Buchanan	   85 	Somewhat limited   Seepage	0.70	  Very limited   Depth to   saturated zone	    1.00	  Very limited   Depth to water	1.00
99D: Buchanan	       85 	Slope      Somewhat limited   Seepage	0.01          0.70	    Very limited   Depth to   saturated zone	        1.00	       Very limited   Depth to water	      1.00
100: Udorthents	       85	Slope      Not rated	0.12     	      Not rated 	       	    Not rated	
101: Udorthents, refuse substratum	     90 	    Not rated 	     	    Not rated 	     	    Not rated 	

Table 20.—Ponds and Embankments—Continued

Map symbol and soil name	Pct. of	Pond reservoir ar	eas	Embankments, dikes   levees	, and	Aquifer-fed excavated pond	s
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
102C: Mandy	     40 	  Somewhat limited   Depth to bedrock   Seepage	      0.77  0.70	  Somewhat limited   Thin layer	      0.77	   Very limited   Depth to water	1.00
Rock outcrop	   35 	  Very limited   Depth to bedrock	1.00	  Not rated 		  Not rated   	
103C: Knapp Creek	     40 	  Very limited   Seepage   Depth to bedrock	    1.00  0.01	  Somewhat limited   Seepage   Thin layer	    0.25  0.01	  Very limited   Depth to water	1.00
Rock outcrop	35	  Very limited   Depth to bedrock	1.00	  Not rated 		  Not rated 	
104B: Flatiron	     80 	  Very limited   Seepage	1.00	  Somewhat limited   Seepage	0.01	    Very limited   Depth to water	1.00
104C: Flatiron	   80 	  Very limited   Seepage   Slope	1.00	  Somewhat limited   Seepage	0.01	  Very limited   Depth to water	1.00
104D: Flatiron	     80   	  Very limited   Seepage   Slope	    1.00  0.12	  Somewhat limited   Seepage	    0.01	  Very limited   Depth to water	1.00
104E: Flatiron	     80 	  Very limited   Seepage   Slope	    1.00  0.50	  Somewhat limited   Seepage	    0.01	  Very limited   Depth to water	1.00
108D: Hartleton	     85   	  Very limited   Seepage   Slope   Depth to bedrock	  1.00  0.12  0.01	  Somewhat limited   Thin layer	0.01	  Very limited   Depth to water	1.00
108E: Hartleton	     85   	  Very limited   Seepage   Slope   Depth to bedrock	  1.00  0.50  0.01	  Somewhat limited   Thin layer	0.01	  Very limited   Depth to water	1.00
108F: Hartleton	     85   	  Very limited   Seepage   Slope   Depth to bedrock	  1.00  0.94  0.01	  Somewhat limited   Thin layer	0.01	  Very limited   Depth to water	1.00
131: Lamson	     85   	  Very limited   Seepage 	1.00	  Very limited   Depth to   saturated zone   Seepage	    1.00    0.02	  Very limited   Cutbanks cave 	1.00

Table 20.—Ponds and Embankments—Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir ar 	eas	Embankments, dikes   levees 	, and	Aquifer-fed excavated pond	ls
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
132B: Wiscoy	     80   	  Somewhat limited   Seepage	0.02	   Very limited   Depth to   saturated zone   Piping	    1.00    0.97	  Very limited   Depth to water	1.00
132C: Wiscoy	     80   	  Somewhat limited   Seepage       Slope	0.02	  Very limited   Depth to   saturated zone   Piping	    1.00    0.97	  Very limited   Depth to water   	1.00
135C: Hudson	   85     	  Somewhat limited   Slope	    0.01 	  Very limited   Depth to   saturated zone   Hard to pack	  1.00    0.07	   Very limited   Slow refill   Cutbanks cave	1.00
135D: Hudson	     85   	  Somewhat limited   Slope 	    0.12 	  Very limited   Depth to   saturated zone   Hard to pack	  1.00    0.07	Very limited Slow refill Cutbanks cave	1.00
135E: Hudson	     85   	  Somewhat limited   Slope 	      0.50	  Very limited   Depth to   saturated zone   Hard to pack	    1.00    0.07	  Very limited   Slow refill     Cutbanks cave	1.00
140D: Dunkirk	     85   	  Somewhat limited   Slope   Seepage	      0.12  0.03	    Very limited   Piping	      1.00	     Very limited   Depth to water	1.00
140E: Dunkirk	   85 	  Somewhat limited   Slope   Seepage	0.50	  Very limited   Piping	    1.00	  Very limited   Depth to water	1.00
185C: Onoville	     85   	Somewhat limited   Seepage   Slope	    0.70    0.01	  Very limited   Depth to   saturated zone   Piping	1.00	  Very limited   Depth to water	1.00
185D: Onoville	     85   	Somewhat limited   Seepage   Slope	0.70	   Very limited   Depth to   saturated zone   Piping	    1.00    0.73	  Very limited   Depth to water	1.00
187B: Shongo	     80   	  Somewhat limited   Seepage 	      0.53 	  Very limited   Depth to   saturated zone   Piping	    1.00    0.78	  Very limited   Depth to water	1.00

Table 20.—Ponds and Embankments—Continued

Map symbol and soil name	Pct. of map	Pond reservoir ar	eas	Embankments, dikes   levees	, and	Aquifer-fed excavated ponds			
	unit   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value		
187C: Shongo	     80   	  Somewhat limited   Seepage     Slope	      0.53    0.01	  Very limited   Depth to   saturated zone   Piping	      1.00    0.78	  Very limited   Depth to water 	1.00		
188B: Cavode	     85   	Not limited		  Very limited   Depth to   saturated zone   Piping	      1.00    0.19	  Very limited   Depth to water	1.00		
188C: Cavode	     85     	  Somewhat limited   Slope 	0.01	  Very limited   Depth to   saturated zone   Piping	    1.00    0.19	  Very limited   Depth to water	1.00		
188D: Cavode	   85     	  Somewhat limited   Slope	    0.12 	   Very limited   Depth to   saturated zone   Piping	  1.00    0.19	  Very limited   Depth to water	1.00		
189B: Portville	   80   	  Somewhat limited   Seepage	0.53	   Very limited   Depth to   saturated zone   Piping	  1.00    0.76	  Very limited   Depth to water	1.00		
189C: Portville	   80   	Somewhat limited   Seepage     Slope	0.53	   Very limited   Depth to   saturated zone   Piping	  1.00    0.76	  Very limited   Depth to water	1.00		
195C: Mandy	     85   	  Somewhat limited   Depth to bedrock   Seepage	      0.77  0.70	  Somewhat limited   Thin layer	      0.77	  Very limited   Depth to water	1.00		
195D: Mandy	   85   	  Somewhat limited   Depth to bedrock   Seepage   Slope	  0.77  0.70  0.12	  Somewhat limited   Thin layer	    0.77 	  Very limited   Depth to water	1.00		
195E: Mandy	     85     	  Somewhat limited   Slope   Depth to bedrock   Seepage	    0.82  0.77  0.70	  Somewhat limited   Thin layer	    0.77 	  Very limited   Depth to water 	1.00		
199C: Buchanan	     85   	  Somewhat limited   Seepage     Slope	    0.70    0.01	  Very limited   Depth to   saturated zone	    1.00	  Very limited   Depth to water	1.00		

Table 20.—Ponds and Embankments—Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir ar	eas	Embankments, dikes   levees	, and	Aquifer-fed excavated ponds		
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	
199D: Buchanan	     85   	  Somewhat limited   Seepage     Slope	      0.70    0.12	  Very limited   Depth to   saturated zone	      1.00	  Very limited   Depth to water	1.00	
289B: Ceres	     85 	Very limited   Seepage   Depth to bedrock	1.00	  Somewhat limited   Thin layer   Seepage	    0.29  0.12	  Very limited   Depth to water	1.00	
289C: Ceres	   85   	  Very limited   Seepage   Depth to bedrock   Slope	  1.00  0.29  0.01	  Somewhat limited   Thin layer   Seepage	    0.29  0.12	  Very limited   Depth to water	1.00	
289D: Ceres	     85   	  Very limited   Seepage   Depth to bedrock   Slope	    1.00  0.29  0.12	  Somewhat limited   Thin layer   Seepage	    0.29  0.12	  Very limited   Depth to water 	1.00	
289E: Ceres	     85   	   Very limited   Seepage   Slope   Depth to bedrock	    1.00  0.50  0.29	  Somewhat limited   Thin layer   Seepage	    0.29  0.12	  Very limited   Depth to water	1.00	
289F: Ceres	     85     	  Very limited   Seepage   Slope   Depth to bedrock	    1.00  0.94  0.29	  Somewhat limited   Thin layer   Seepage	    0.29  0.12	  Very limited   Depth to water	1.00	
400: Wakeville	   80     	  Somewhat limited   Seepage 	    0.70   	  Very limited   Depth to   saturated zone   Piping   Seepage	  1.00    1.00  0.07	   Very limited   Cutbanks cave     Slow refill	1.00	
496B: Gilpin	     85 	  Somewhat limited   Seepage	0.70	  Very limited   Piping	1.00	  Very limited   Depth to hard   bedrock	1.00	
		Depth to bedrock	0.69	Depth to   saturated zone   Thin layer	0.87	Slow refill  Cutbanks cave  Depth to saturated zone	0.30	
496C: Gilpin	   85     	  Somewhat limited   Seepage   Depth to bedrock   Slope	    0.70  0.69  0.01	  Very limited   Piping   Thin layer	    1.00  0.70	  Very limited   Depth to water 	1.00	

Table 20.—Ponds and Embankments—Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir ar	eas	Embankments, dikes   levees 	, and	Aquifer-fed excavated ponds			
	   	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value		
496D: Gilpin	     85     	   Somewhat limited   Seepage   Depth to bedrock   Slope	    0.70  0.69  0.12	  Very limited   Piping   Thin layer	  1.00  0.70	  Very limited   Depth to water	1.00		
496E: Gilpin	   85   	Somewhat limited   Seepage   Depth to bedrock   Slope	  0.70  0.69  0.50	  Very limited   Piping   Thin layer	  1.00  0.70	  Very limited   Depth to water	1.00		
496F: Gilpin	     85   	   Somewhat limited   Slope   Seepage   Depth to bedrock	  0.94  0.70  0.69	  Very limited   Piping   Thin layer	  1.00  0.70	  Very limited   Depth to water 	1.00		
497D: Rayne	     80 	Somewhat limited   Seepage   Slope	    0.70  0.12	  Very limited   Piping	1.00	  Very limited   Depth to water	1.00		
497E: Rayne	     80 	Somewhat limited   Seepage   Slope	    0.70  0.50	  Very limited   Piping	1.00	  Very limited   Depth to water	1.00		
497F: Rayne	     80 	Somewhat limited   Slope   Seepage	    0.94  0.70	  Very limited   Piping	1.00	  Very limited   Depth to water	1.00		
498E: Rayne	     80 	  Somewhat limited   Seepage   Slope	    0.70  0.50	  Very limited   Piping	1.00	  Very limited   Depth to water	1.00		
800: Holderton	     80   	  Very limited   Seepage	1.00	  Very limited   Depth to   saturated zone   Seepage	1.00	  Very limited   Cutbanks cave 	1.00		
PG: Pits, gravel	85	  Not rated		    Not rated 		    Not rated 			
Ur: Urban land	85	    Not rated		    Not rated 		    Not rated 			
W: Water	  100	  Not limited		    Not rated 		    Not rated 			

Table 21.—Engineering Properties

(Absence of an entry indicates that the data were not estimated.)

Map symbol and soil name	Depth	USDA texture	Classif	ication		Fragi	ments		_	e passin umber	ng	  Liquid  limit	    Plas-  ticity
and soil name		İ	   Unified	   AASHTO			3-10  inches	4	1 10	1 40	200	11m1c	ticity  index
	In					Pct	Pct	 				Pct	
1: Udifluvents	0 - 9	  -  Gravelly loamy   sand	    SC, ML, GM,   CL, SM	     <b>A-2, A-1,</b>	A-4	     0	     0-10	    45-100	    25-100	    15-100	     5-80	0-25	    NP-20
	9-70	Very gravelly   sand, gravelly   loam, silty   clay loam	SP-SC, CL,	A-2, A-1,   4, A-6 	A-	0	0-15	45-100   	25-100   	15-100   	0-90	0-30	NP-20   
Fluvaquents	0-12	  Gravelly sandy   loam	  SC, ML, GM,   CL, SM	  A-2, A-1, 	A-4	   0 	   0-10 	  45-100 	  25-100 	  15-100 	  10-90 	0-25	  NP-15 
	12-72	Very gravelly   sand, gravelly   silt loam,   silty clay   loam	SP-SC, CL, GC, GM, ML, SC-SM	A-2, A-1, 4, A-6	A-	0	0-15     	45-100       	25-100       	15-100       	5-90     	0-30	NP - 20     
2:		İ		 			 	 			 		
Hamlin	0-10 10-17	Silt loam  Very fine sandy   loam, silt   loam	CL, CL-ML, ML  CL, CL-ML, ML			0	0 0			80-100  80-100 		15-35  15-35	2-15
	17-36	loam  Silt loam, very   fine sandy   loam	  CL, CL-ML, ML   	   <b>A-4, A-</b> 6   		0	   0 	  95-100   	  92-100   	  90-100 	  45-90 	15-35	   2-15 
	36-72	Very fine sandy   loam, silt   loam, fine   sandy loam	CL-ML, CL, ML, SC-SM, SM	<b>A-4</b>     		0	0	95-100	92-100     	65-100     	35-90	0-25	NP-10     
3: Tioga	0-8	  Silt loam	  ML, SM	    A-4		0	     0	    65-100	    50-100	  35-100	    20-90	0-15	     NP-4
	8-34	Silt loam, very   fine sandy   loam, loam,   gravelly fine   sandy loam		A-4, A-2,     	A-1	0	0	!	:	35-100     	!	0-15	NP - 2     
	34-72	Very fine sandy loam, fine sandy loam, silt loam, gravelly loam, very gravelly loamy sand	SM, ML, GW- GM, GM	A-2, A-1, 3, A-4	A-	0	0-10	50-100       	30-100	15-100           	5-90     	0-15           	NP - 2       

Map symbol	Depth	USDA texture	Classif	cation	Fragi	ments		rcentage sieve n	e passinumber	ng	Liquid	   Plas-
and soil name	_	İ			>10	3-10	İ				limit	ticity
·		l	Unified	AASHTO		inches	4	10	40	200	.	index
	In				Pct	Pct					Pct	
4:		 	 			 	 	 	 	l I		 
Teel	0 - 8	Silt loam	CL, CL-ML, ML	A-4, A-6	0	j 0	1	1	80-100		15-35	2-15
		Silt loam, very   fine sandy   loam	<u> </u> 	A-4, A-6	0	0   		   	80-100   	   	15-35   	2-15   
	34-72	Silt loam, very   fine sandy   loam, fine   sandy loam,   gravelly very   fine sandy   loam	CL, ML, SC-	A-4, A-2, A-6	0	0-5       	75-100           	70-100           	50-100         	30-90         	0-35           	NP - 15           
5:			 			 	 	 		İ		 
Wayland		1		A-5, A-7	0	1		1	70-100			5-15
	9-25	Silty clay   loam, silt   loam	ML, CL-ML, CL   	A-4, A-6, A-7    	0	0   	96-100   	95-100   	80-100   	70-95   	25-45	5-15   
	25-72	Silt loam,   stratified   silty clay   loam to silt   loam	CL, CL-ML	A-4	0	0	95-100     	92-100	80-100     	65-95     	16-25       	5-10   
6A:		 	 			 	 	 	 	i i		 
Wyalusing	0-6 6-27	!	ML, SM  ML, SM 	A-4 A-4, A-2	0		1		50-100  50-100 		25-35  20-35 	NP-10   NP-10 
	27-72	gravelly loam  Stratified very   gravelly loamy   sand, sand	  SP-SM, GM, SM   	A-1, A-2	0	0-30	  45-100 	  25-100 	  10-70 	   4-30 	  15-25   	  NP-2 
7A:			 			 	 	 		l I		 
Philo		Silt loam  Fine sandy   loam, gravelly   loam, sandy   loam, silt   loam	CL-ML, ML  CL-ML, GM,   ML, SM	A-4 A-4	0	1	1	1	40-100  40-100   		1	1-10   1-10 
	34-46	Fine sandy   loam, gravelly   sandy loam,   loam, silt   loam	CL-ML, GM, SM	A-4	0	0	75-100     	70-100     	40-100     	20-90	20-35	1-10   

Table 21.—Engineering Properties—Continued

Table 21.-Engineering Properties-Continued

Map symbol	Depth	USDA texture	Classif	ication	_ii	ments		rcentag sieve n	e passinumber	ng	Liquid	
and soil name			   Unified	AASHTO	>10	3-10 inches	4	1 10	1 40	1 200	limit	ticity  index
	In			AADIIIO	Pct	Pct				200	Pct	111067
7A:							 	 		 		
Philo	46-72	Sandy loam,   gravelly loam,   very gravelly   fine sandy   loam, silt   loam	SC-SM, GC,   GM, SC, SM    -  -	A-2, A-4   	0	0	65-100         	45-100           	25-95         	10-90         	15-30         	1-10       
8:		į	İ	İ			į	İ		İ		
Middlebury	0-8	Silt loam   	CL, CL-ML,   ML, SC-SM,   SM	A-4, A-2   	0	0   	75-100   	70-100   	50-100   	30-90   	25-35	5-10   
	8-30	Loam, silt loam, gravelly fine sandy loam	ML, CL-ML, SC-SM, SM	A-4, A-2   	0	0   	75-100   	70-100   	50-100   	30-90   	20-25	2-5
	30-72	Fine sandy   loam, gravelly   loam, very   fine sandy   loam,   stratified   very gravelly   sand	SM, GW, GM, SW	A-1, A-2, A-           	3 0	O	50-100         	35-100         	20-95	0-70         	0-14           	NP
9 <b>:</b>		 	 	 			 	 		l I		 
Pawling	0-9 9-28	Silt loam  Silt loam,   loam, fine   sandy loam	CL-ML, CL, ML CL-ML, ML, SC, SM	A-4   A-4 	0 0	0   0 		1	65-100  55-100 		20-30	3-10 3-10
	28-72	Gravelly loamy sand, very gravelly sand, extremely gravelly sand	GP, GW, SP,   SW 	A-1     	0	0-5	40-90     	20-75	10-50	0-20	0-14	NP
10:										ļ		
Atkins	0-4 4-38	Silt loam  Loam, silty   clay loam,   silt loam,   gravelly fine	CL, CL-ML, ML  CL, ML, SC,   SM 	A-6, A-4  A-6, A-4 	0 0	0   0   			75-100  65-100 			3-20   3-20 
	38-72	sandy loam  Sandy loam,   gravelly sandy   loam, silty   clay loam	  SC, CL, GM,   ML, SM 	  A-2, A-4, A-   	6   0   	0-10	  45-100     	  30-100   	  15-95     	  10-90   	  20-40   	   1-15   

Map symbol	Depth	USDA texture	Classif	ication	Fragi	ments		rcentage sieve n	_	ng	  Liquid	   Plas-
and soil name			Unified	AASHTO	>10	3-10 inches		10	40	1 200		ticity
	In				Pct	Pct					Pct	
11B,11C,11D,11E, 11F:	 		 			   			   	   		   
Ischua	0-6	Channery silt	CL, CL-ML,	A-6, A-4	0	0-10	65-95	55-92	40-90	30-80	25-40	5-20
	6-23	1	CL, CL-ML, GC, SC	A-6, A-4     	0       	0-15       	65-95     	55-92         	40-90       	30-85	25-40	5-20     
	23-28     	Channery silty   clay loam,   very channery   silt loam,   loam	CL, CL-ML,   GC, SC   	A-6, A-4, A-   2-6, A-2-4	0	0-15     	45-92     	35-85       	25-80     	20-75       	25-40     	5-20     
	28-38	Unweathered bedrock	 		0	0 	 		 	 		 
12B,12C,12D,12E											00.40	
Franklinville	0-3 	Channery silt	ML, GM, GC- GM, SM	A-4, A-6	0	0-5 	65-95 	55-92 	40-90 	30-80 	20-40	1-12 
	3-32	Channery silt   loam, silt   loam, channery   loam, gravelly   fine sandy   loam	1	A-4, A-2     	0	0-5     	65-95     	55-92       	35-90       	20-80     	15-25       	NP - 5       
	32-42	Channery silt   loam, channery   loam, gravelly   fine sandy   loam		A-4, A-2	0	0-10   	65-90	50-75     	35-70     	20-65     	15-25     	NP - 5     
	42-72	Very channery silt loam, flaggy loam, gravelly sandy loam, very channery fine sandy loam	GM, GC-GM, ML, SM	A-2, A-1-b,   A-4 	0-1         	0-15       	45-85       	30-70	15-65           	10-60         	  15-25           	NP-5       
14B,14C: Hornellsville		  Silt loam  Silty clay   loam, silty   clay, channery   silty clay	  ML, CL  CL, GC, ML,   CH	  A-7, A-6  A-7, A-6 	0 0	   0   0-5 		  92-100  50-95   			  35-49  35-55 	
	   34-48 	loam, clay  Weathered   bedrock			0	   0 	   		   	   		   

Table 21.-Engineering Properties-Continued

Table 21.-Engineering Properties-Continued

Map symbol	   Depth	USDA texture	Classif	ication	Fragi	ments			e passi umber		  Liquid	
and soil name	[				>10	3-10	ļ				limit	
			Unified	AASHTO	l	inches	4	10	40	200	ļ	index
	In				Pct	Pct					Pct	
15B,15C,15D:	 		 	 		 	 			1		 
Willdin	0-6	Channery silt	ML, GM, SM	A-4, A-5	j 0	0-15	65-95	55-92	40-90	30-85	25-45	3-10
	6-24     	Channery silt   loam, silt   loam, channery   loam, flaggy   fine sandy   loam	CL-ML, GC-GM,   GM, SM   	A-4, A-2-4     	0	0-15       	65-95       	55-92       	35-90       	25-80       	15-30       	NP-10       
	24-60	Very channery	GM, CL-ML, ML, SM	A-2, A-2-4, A-4	0	0-25	50-90     	40-75	35-70	25-65	15-30       	NP - 7       
	60-72     	Very channery   silt loam,   gravelly silt   loam, flaggy   loam	GM, CL-ML, ML, SM	A-2, A-2-4, A-4	0	0-25	45-90     	35-75     	25-70	20-65	15-30     	NP - 7     
16A,16B,16C:	 					 	 					 
Almond	0-7   7-37 	Silt loam  Channery silty   clay loam,   silt loam,   channery silt   loam, silty   clay loam	CL, ML CL, GC, SC	A-6, A-7  A-6 	0 0	1		1	1	35-75  35-75     	1	10-20  10-20   
	37-72		CL, CL-ML, GC, SC-SM	A-4, A-2, A-   1, A-6 	0	0-25	45-90     	30-75	25-70	20-65	25-40	5-15     
17B,17C,17D,17E:	 		 	 		 	 					 
Salamanca	0-8	Silt loam	CL, CL-ML,	A-6, A-4, A-2	0	0-5	65-95	50-92	40-90	30-80	25-40	5-20
	   8-16 	Silt loam,   channery silty   clay loam,	SC, SC-SM  CL, CL-ML,   GC, SC	  A-6, A-4 	   0 	   0-10 	  65-95   	50-92	40-90	30-85	25-40	   5-20 
	   16-37     	channery loam Channery silty clay loam, channery silt loam, very channery loam	  CL, CL-ML,   GC, SC   	  A-6, A-4, A-   2-6, A-2-4 	   0   	   0-15     	  50-85     	  40-70   	  35-70   	  25-65     	  25-40   	   5-20   

Map symbol	Depth	USDA texture	Classif	ication	Frag	ments		_	e passi: umber	ng	  Liquid	   Plas-
and soil name			Unified	AASHTO	>10	3-10	4	1 10	1 40	1 200	limit	ticity
	In	.		AADIITO	Pct	Pct	¦ — -			200	Pct	Index
Salamanca	   37-72   	Channery silt   loam, channery silty clay   loam, very   channery loam	  GC, CL-ML,   CL, SC 	  A-6, A-4, A-   2-6, A-2-4 	   0   	   0-15   	  50-85     	  40-70     	  35-70     	  25-65     	  25-40     	   5-20   
18A:		<u> </u>	į	j	İ	İ	İ	İ	İ	İ	İ	İ
Pope	0-10   	Fine sandy loam   	SC-SM, CL, CL-ML, ML, SM	A - 4   	0   	0   	70-100   	55-100   	30-100   	15-90   	15-30	NP-10   
	10-38	Very fine sandy   loam, fine   sandy loam,   gravelly sandy   loam, loam	SC-SM, SM	A-4, A-2   	0     	0     	70-100     	55-100     	30-100     	15-90     	15-30	NP - 7     
	38-72	Loam, sandy loam, very gravelly loamy sand, gravelly loam		A-4, A-2, A-1	0     	0-10     	40-100     	20-100     	10-95     	4-70     	15-30     	NP - 7     
19A,19B:	 		 	<u> </u>	 		 	 		 		 
Olean	0-9   9-23 	Silt loam  Silt loam, very   fine sandy   loam	CL-ML, CL, ML CL-ML, CL, ML	1	0   0 	0   0 	1	1	75-100  75-100 	1	15-30  15-30	2-10 2-10
	23-36	Silty clay   loam, silt   loam	CL, CL-ML	A-4, A-6	0	0	  95-100 	92-100	80-100	65-90	20-40	5-15
	36-72	Very gravelly   loamy sand,   sand	GP-GM, GM, SM, SP-SM	A-1, A-2, A-3 	0-2	0-10	  40-100 	  20-100 	  10-75 	0-30	0-14	   NP 
20A,20B,20C,20D:	 		l I	 	 		 	 		 		 
Unadilla	0-9 9-55	Silt loam  Silt loam, very   fine sandy   loam	CL-ML, ML CL-ML, ML	A-4   A-4 	0   0 	0 0	100  95-100 	1	75-100  75-100 			NP-10   NP-10 
	55-72	1	SM, GP, GM, SP	A-1, A-2, A-3	0	0-10	45-100       	30-100	  15-75       	1-45       	0-14	NP       
22A,22B: Allard	   0-9   9-34	  Silt loam  Silt loam, very   fine sandy   loam	  CL-ML, ML  CL-ML, ML	   A-4   A-4 	   0   0	   0   0	   100   100	1	  70-100  75-100 			    NP-10  NP-10 

Table 21.-Engineering Properties-Continued

Table 21.-Engineering Properties-Continued

Map symbol			Classi	ficati	on		Fragi	ments		rcentago sieve n			Liquid	   Plas-
and soil name	_		Unified	2	ASHTO		>10   inghod	3-10 inches		1 10	1 40	1 200	limit	ticity
	In	-	Onlined		ASHIO	<u></u>	Pct	Pct	<del>-</del>		1 40	200	Pct	Index
Allard	34-72	Very gravelly   loamy sand,   stratified   very gravelly   sand, loamy   sand	  SP, GM, GW,   SM, SW	  A-1,   	A-2,	A-3	0   0 	   0   	  40-100     	  25-100     	  10-75       	0-30	   0-14     	NP   NP   
25A,25B,25C,25D, 25E,25F:			   				   	   	   	   	   			   
Chenango	0-9	Gravelly silt	CL-ML, GM,	A-4,	A-2,	A-1	0 	0-10	50-92	40-85	25-80	15-70	0-35	  NP-10 
	9-30	Gravelly silt   loam, very   gravelly loam,   very gravelly   silt loam,   gravelly fine   sandy loam,   fine sandy   loam	GC-GM, GM,	A-4,	A-2,	A-1	0	0-10	40-85	30-70	20-70	10-65	0-40	NP-10           
	30-72	Stratified very gravelly sand, very gravelly coarse sandy loam, very gravelly loamy coarse sand, stratified gravelly sand, gravelly loamy fine sand	SW	A-1			0   	0-10	40-75             	20-60	10-45	1-20                 	0-14	NP
26A,26B: Chenango, fan	0 - 9	    Channery silt	SC-SM, GM,	A-4,	A-2,	A-1	0	0-5	    50-92	    35-85	15-80	10-70	0-35	  NP-10
	9-45	loam  Channery silt   loam, very   gravelly silt   loam, very   gravelly loam,   channery loam,   very channery   fine sandy   loam	ML, SM GC-GM, GM, GP-GM, ML, SM	  A-1,       	A-2,	A-4	   0         	   0-20       	  40-85       	  30-70         	  20-65         	  10-60         	0-40	  NP-10         

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Map symbol	Depth	USDA texture	Classif	ication	Frag	ments			e passinumber	ng	  Liquid	   Plas-
and soil name		İ			>10	3-10	İ				limit	
			Unified	AASHTO	inches	inches	4	10	40	200		index
	In				Pct	Pct					Pct	
Chenango, fan	45-72	Very gravelly coarse sandy loam, stratified gravelly sand, very gravelly loamy sand, very gravelly sand, gravelly loamy fine sand	 	   A-1           		0-20	  40-75         	  25-55               	10-40	0-15	0-14	NP
27A,27B:								<u> </u>	 	l I		 
Castile	0-10	Gravelly silt	GC-GM, CL-ML,	A-4, A-2	0	0-10	70-90	60-75	40-70	15-65	0-30	NP-10
	10-30	loam  Very gravelly	GM, ML, SM	  A-2, A-1, A-	0	0-10	  45-85	  30-70	  15-65	   5-65	0-30	  NP-10
		loam, very gravelly silt loam, gravelly silt loam, very gravelly sandy loam	ML, SM	3, A-4		0-10         				3-03         	0-30         	
	30-72	Stratified very gravelly sand, very gravelly loam, very gravelly loamy sand, extremely gravelly loamy sand	GM, SW-SM	A-1, A-2, A-4             	0           	0-10             	40-70 	25-50           	10-45           	0-40	0-14           	NP             
28A:												
Scio	9-50   8	Silt loam  Silt loam, very   fine sandy   loam	ML  ML 	A-4  A-4 	0 0	0 0	100   100 	1	65-100  75-100 		0-20	
	50-72	Gravelly loamy sand, stratified very gravelly sand to fine sandy loam	SM, ML, GP-   GM, SP     	A-1, A-2, A-   3, A-4   	0       	0       	45-100       	30-100       	15-95         	1-80     	0-10   NP 	NP - 4       

Table 21.-Engineering Properties-Continued

Table 21.-Engineering Properties-Continued

Map symbol	Depth	USDA texture	Classif	ication	i	ments		rcentage sieve n	e passinumber	ng	Liquid	
and soil name	İ		   Unified	AASHTO	>10	3-10 inches	   4	1 10	İ 40	200	limit	ticity  index
	In	<u> </u>		AABIITO	Pct	Pct	<del>-</del> -			200	Pct	Index
29A,29B,29C,29D, 29E:		 	 		   	   	   	   	   			   
Chenango	0-9	Fine gravelly sandy loam	SC-SM, GM, ML, SM	A-1, A-2, A-4	j 0	[ 0 	65-96	35-85	15-80	10-70	0-35	NP-10 
	9-30	Fine gravelly loam, loam, fine gravelly sandy loam, very gravelly loam, very gravelly silt loam, gravelly fine sandy loam	SC-SM, GM,   ML, SM         	A-1, A-2, A-4	0	0	55-92	30-75	15-70             	10-65	0-40	NP-10 
	30-72	Very gravelly coarse sandy loam, stratified very gravelly sand, very gravelly loamy sand, very gravelly sand, gravelly sand, gravelly loamy	 	A-1         	0             	0-10	40-85	20-60	10-45	0-20	0-14	NP
31B,31C:							   					
Collamer	0-6 	Silt loam   	CL, CL-ML,   ML, SC-SM,   SM	A-4 	0   	0   	95-100   	92-100   	65-100   	40-90   	25-35	5-10   
	6-24	Silt loam, very   fine sandy   loam, fine   sandy loam,   loam	CL-ML, CL,   ML, SC-SM   	A - 4     	0     	0     	95-100       	92-100       	75-100       	55-90     	20-30     	3-10     
	24-45	Silty clay   loam, silt   loam	CL, CL-ML	A-4, A-6	0 	0 	95-100 	92-100	80-100	65-95	20-35	5-15 
	45-72	Silt loam, very   fine sand,   silty clay   loam,   stratified   very fine sand   to silt	ML, SM	A-4, A-6	0	0	   95-100           	92-100	  65-100       	30-95	20-35	3-15         

Map symbol	Depth	USDA texture	Classif	ication	_i	ments	!	rcentag	e passi umber	ng	  Liquid	
and soil name	 		Unified	AASHTO	>10	3-10	4	1 10	1 40	200	limit	ticity
	In		Onlined	AASIIIO	Pct	Pct			1 - 10	200	Pct	Index
202 200												
32A,32B: Churchville	0-14		  ML, MH, CL	  A-7	0	0	  90-100	  85-100	  75-100	  60-95	  40-55	  15-25
	14-37   	Silty clay   loam, silty   clay, clay   loam	    CT	A-7   	0	0   	90-100	85-100   	70-100   	60-95	40-50	25-35
	37-72   	1	CL-ML, CL, GC, GM, ML	A-4, A-2   	0	   0-5   	  65-92     	  55-85     	  40-80   	  30-75     	10-20	   1-8   
33A:								l 				
Wallington	0-8 8-14	Silt loam  Silt loam, very   fine sandy	CL-ML, ML  CL-ML, ML	A-4   A-4 	0 0	0   0 	100   100 		80-100  80-100 		15-20  15-20	3-6 3-6
	   14-38 	loam  Silt loam, very   fine sandy   loam	  CL-ML, ML 	A-4 	0	   0 	   100 	  95-100 	  80-100 	  40-90 	15-20	   3-6 
	38-72	Silt loam, very   fine sandy   loam, loamy   very fine sand	 	A-4 	0	0     	  95-100   	  92-100   	  80-100   	  40-90   	0-20	NP-3   
34:	 		l I			 	 	 			}	
Getzville	0-9	Silt loam	CL, ML, OL	A-6, A-7	0	0	95-100	92-100	80-100	65-95	35-45	10-20
	9-24   	Silt loam,   silty clay   loam	CL, CL-ML   	A-6, A-4 	0	0	95-100	92-100   	80-100   	65-95   	20-40	5-20
	24-72	Fine sand, stratified fine sand to sand, sand, loamy fine sand, very gravelly sand	SP-SM, SM,   SP, SW, SW-   SM 	A-3, A-2, A-   	1 0	0-5	55-100         	45-100       	20-80	1-35         	0-14         	NP         
35A,35B,35C:								 	<u> </u>			
Rhinebeck	0-9 	Silt loam	CL, CH, MH,	A-7, A-6	0	0	92-100 	85-100 	70-100 	55-95 	30-55 	10-25
	9-13   	Silty clay   loam, silty   clay, silt   loam	CL, CH	A-7, A-6	0	0   	92-100	85-100   	70-100   	45-95   	30-55	15-30
	13-38	Silty clay,  silty clay  loam	CL, CH	A-7, A-6	0	0	92-100   	85-100   	75-100   	65-95	30-55	15-30

Table 21.-Engineering Properties-Continued

Table	21Engineering	Properties-Continued
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Map symbol	Depth	USDA texture	ļ 	Classif	ication	i		ments		rcentag	e passii umber	ng		   Plas-
and soil name			   1	Unified	   AASHTO	>10		3-10  inches	   4	10	1 40	1 200	limit	ticity  index
	In		-	<u> </u>		Pct		Pct	<u></u>				Pct	=======
Rhinebeck	38-72	Silty clay   loam,   stratified   very fine sand   to silt, clay,   silty clay	j j	ML, CL, ML	   <b>A - 4</b>   		)	   0   	  92-100     	  85-100     	  70-100     	  60-95     	10-30	  NP-10     
36:					 			 	 	 		 		 
Canadice	0 - 8	Silty clay loam	MH,		  A-7 	(	)	0	100	95-100	80-100	65-95	40-65	10-25
	8-42	Silty clay   loam, silty   clay, clay		CL, CH,	   		)	0	100	  95-100 	80-100	70-95	45-65	20-30
	42-72	Stratified   silty clay   loam to silty   clay, silty   clay, clay	MH, ML	CL, CH,	   <b>A</b> -7   		)	0     	100   	92-100     	80-100   	70-95     	45-65     	20-30
37A,37B:			 		 			l I	 	 	 	 		 
Tonawanda	0-9 9-38	Silt loam  Silt loam,		CL-ML CL-ML	A-4   A-4			0	100 100	1	75-100 70-100		0-25	1
	9-36	silt loam,   silt, very   fine sandy   loam, loamy   very fine sand	   	СБ-МБ	A-4     		,	<b>0</b>     	100     	96-100   	70-100     	35-90     	0-25	NP-5     
	38-72	Silt loam, stratified loamy fine sand to sand, silt, very fine sandy loam		CL-ML	A - 4 		)	0	100       	85-100       	70-100       	35-90       	0-25	NP - 5         
38A,38B:			 		 			 	! 	 		 		
Niagara	0-12	Silt loam	ML		A-4, A-5, A	7-   (	)	0	95-100	92-100	75-100	50-90	30-45	5-15
	12-36	Silty clay   loam, silt   loam, very   fine sandy   loam	  CL,     	CL-ML, ML	!		)	   0   	  95-100     	  92-100     	  75-100   	  50-95     	25-35	   3-13   
	36-72	Silt loam, very   fine sandy   loam, silty   clay loam	CL,     	CL-ML, ML	A-4, A-6   		)	0     	95-100     	92-100     	75-100     	  50-95   	25-35	   3-13   

			Classif	icati	on		Fragi	nents		_	e passi	ng		[
Map symbol	Depth	USDA texture							ļ .	sieve n	umber		Liquid	
and soil name	İ		Unified	   a	ASHTO		>10	3-10 inches	   4	1 10	1 40	200	limit	ticity  index
	In			<u></u>	Abiiio		Pct	Pct	<del>-</del>	¦— <del></del>		_200	Pct	Index
39A:				i			100	100	! 	i		¦	100	ĺ
Halsey	0-6	Silt loam	CL-ML, CL, ML, SC, SM	A-4,	A-2		0	0-5	65-100	50-100	35-100	20-90	20-30	3-10
		Gravelly silt   loam, gravelly   loam, loam,   gravelly fine   sandy loam		A-4,			0	0-5	   	     	35-100       	     		3-10     
	34-72	Very gravelly   loamy fine   sand,   stratified   gravelly sand	SW-SM, GM,   GP, SM, SP	A-1,       	A-2,	A-3	0     	0-10     	45-100       	30-100       	15-70       	0-30     	0-14	NP       
40A,40B,40C:				İ				İ		İ				
Williamson		Silt loam			A-6,	<b>A-7</b>	0	0			65-100		1	5-15
	8-20 	Silt loam, very   fine sandy   loam	CL-ML, CL, ML   	A-4   			0   	0   	95-100   	92-100   	75-100   	45-90   	0-30	NP-10   
	fine sandy	CL-ML, CL, ML	A-4			0	0	95-100	92-100	75-100	45-90	0-30	NP-10 	
	38-72	Silt loam,   stratified   very fine   sandy loam to   silt loam	CL-ML, CL, ML	A-4       			0	0	95-100	92-100	75-100       	35-90     	0-30	NP-10       
41A,41B:				İ				İ		İ				
Barcelona		Silt loam 	ML	6,		A-	0	İ		j	75-100 	İ	İ	5-15
	9-36	Silt loam,   silty clay   loam, very   fine sandy   loam	CL, CL-ML, ML     	<b>A-4,</b>       	A-6		0     	0     	95-100     	92-100       	80-100       	65-95       	25-35	3-13     
	36-46	Channery silt   loam, very   channery silt   loam, channery   silty clay   loam	GC, CL, GM, ML	A-2,       	A-4,	A-6	0     	0-15     	50-90     	40-75       	35-70       	25-65     	25-35	3-13       
	46-56	Unweathered   bedrock		İ İ			0	   0 	   	   	   	   		   
42A,42B:							 		 	İ				
Elnora	0-7 7-27	Fine sandy loam  Loamy fine   sand, fine   sand	SM, ML SM	A-4, A-2	A-2		0   0	0   0 	100   100 	95-100  95-100 	1	20-55	0-14	NP   NP

Table 21.-Engineering Properties-Continued

Table 21.-Engineering Properties-Continued

Map symbol	Depth	USDA texture	Classif:	ication	Fragi	ments		rcentag		ng		   Plas-
and soil name			   Unified	   AASHTO	>10	3-10	4	1 10	1 40	200	limit	ticity
	In			ABIIIO	Pct	Pct	<del>-</del>			200	Pct	Index
Elnora	27-72	  Fine sand,   loamy fine   sand	  SM 	   <b>A</b> -2 	   0 	   0 	  85-100   	  75-100   	  45-80 	  15-35   	   0-14 	   NP 
43: Canandaigua, silt loam		  Silt loam  Silty clay   loam, silt   loam, very   fine sandy	  CL, CL-ML  CL, CL-ML	  A-4, A-6  A-4, A-6	     0   0		    90-100  90-100 					       5-15   5-15
	32-72	loam  Silty clay  loam, silt  loam, very  fine sandy  loam	  CL-ML, CL, ML   	   A-4   	   0 	0   	  95-100   	  85-100     	  65-100     	  45-95     	  20-30   	   3-10     
44: Canandaigua, mucky silt loam	10-32	Mucky silt loam Silty clay loam, silt loam, very fine sandy loam Silty clay loam, silt loam, very fine sandy	OL, ML  CL, CL-ML          CL-ML, CL, ML	A-5, A-4, A-6   A-4, A-6   A-4	   0   0           0	     	  90-100  90-100          95-100	     	65-100     	45-95	20-40     	5-15
45: Canandaigua, acid substratum	8-32	Silt loam   Silty clay   loam, silt   loam, very   fine sandy   loam   Silty clay   loam, silt   loam, very   fine sandy   loam	CL, CL-ML CL, CL-ML CL, CL-ML	  A-4, A-6  A-4, A-6          A-4	0 0	0 0		  85-100  85-100          85-100	65-100     	45-95	20-40	   5-15   5-15           3-10

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Map symbol and soil name	   Depth	USDA texture	Classification		Fragments		Percentage passing sieve number					   Plas-
			Unified	AASHTO	>10	3-10	4	1 10	1 40	200	_ ' '	ticity  index
	In	<u> </u>	Onlined	AASHIO	Pct	Pct		10	40	200	Pct	Index
46:						 	 		 			
Swormville	0-8 8-31	Silt loam  Silt loam,   loam, clay   loam, silty	CL, ML, OL CL, CL-ML	A-6, A-7  A-4, A-6	0   0 	0   0 	1	1	80-100  80-100 	1	35-45 20-35	10-20   5-15 
	   31-35   	loamy fine sand, very gravelly very fine sandy	SM, ML, GW- GM, SW-SM	  A-2, A-1, A-4   	0	0	  65-100     	  45-100     	  30-95   	  10-80   	   0-14     	   NP     
	   35-72   	loam  Loamy sand,   sand, loamy   fine sand,   very gravelly   sand	SW-SM, GM, GW, SM, SW	A-1, A-2, A-3	0	   0-5   	  55-100     	  45-100     	  20-80   	   1-35     	   0-14   	   NP     
47A:												
Minoa	0-9 	Very fine sandy   loam	ML, SM 	A-4 	0	0 	95-100 	92-100 	80-100	35-90 	0-20	NP - 4 
	9-32   	Very fine sandy   loam, fine   sandy loam,   silt loam	SM, ML   	A-4	0   	0   	95-100   	92-100   	55-100   	30-90   	0-20	NP - 4   
	32-36	ı	SM, ML	A-2, A-4   	0     	0     	95-100     	92-100       	55-100     	25-90	0-20	NP - 4       
	36-72	Stratified fine sandy loam to fine sand, silt loam, sandy loam, loamy fine sand	SM, ML	A-2, A-4	0	0	95-100         	92-100	55-100         	20-90	0-20	   NP - 4       
48A,48B,48C:			 		 		 	 	 	 		 
Colonie	0-9 9-47	Fine sandy loam  Loamy fine   sand, fine   sand	SM, ML  SM 	A-4  A-2	0   0 	0   0 	100   100 	1	55-95  55-80 	20-65 20-35	0-14	NP   NP 
	47-72 	Loamy fine   sand, fine   sand	sm   	A-2	0   	0   	100   	92-100   	55-80   	20-35	0-14	NP 

Table 21.-Engineering Properties-Continued

Table 21.-Engineering Properties-Continued

Map symbol	Depth	USDA texture	Classification			Fragments		Percentage passing sieve number				   Plas-
and soil name			   Unified	AASHTO	>10  inches	3-10		1 10	40	1 200	limit   	ticity index
	In				Pct	Pct					Pct	
49A:		]	 	 		 	 	 	 			
Red Hook	0-9 	Silt loam 	CL, CL-ML,   ML, SC-SM,   SM	A-4, A-2, A-6   	0	0-5 	  65-95 	  50-92 	35-90	20-80	15-40	1-15 
	9-32	Gravelly loam, gravelly sandy loam, silt loam, very gravelly sandy loam	 	A-4, A-2, A-   1, A-6 	0     	0-5       	45-92       	30-85       	15-80       	10-70       	15-30     	1-15       
	32-72	loam   loam	GP-GC, GM, ML, SC-SM, SM	A-2, A-1, A-   4, A-6 	0	0-10   	40-90     	25-75     	  15-70     	2-65     	15-30     	1-15     
50A,50B,50C:							İ					
Canaseraga	0-5   5-23 	Silt loam  Silt loam, very   fine sandy   loam	ML  ML, CL-ML 	A-4  A-4 	0 0	0   0 	1	1	65-100  65-100 	1	1	NP - 4   NP - 6 
	23-28	Silt loam, loam	  CL-ML, CL, ML	   A-4	0	0	90-100	  85-100	65-100	  50-90	20-25	3-8
	28-72	Channery silt   loam, very   channery loam,   loam	CL-ML, CL, GC, GM, ML	A-4, A-2   	0	0-10	60-92	50-85   	40-80	30-70     	20-25	3-8
51B,51C,51D,51E,		 	 	 		 	 	 	 	 		
51F: Chadakoin	0-9	  Channery silt	ML, GM, GC-	  A-4, A-2, A-6	0	0-10	  65-95	  55-92	40-90	30-80	20-40	1-12
	   9-33 	loam  Channery silt   loam, silt	GM, SM  ML, GM, GC-   GM, SM	  A-4, A-2 	0	   0-10 	  65-90 	   55-75 	  35-70 	  20-65 	15-25	  NP-5 
		loam, gravelly loam, gravelly fine sandy loam	İ	 		     	     	     	     	     		     
	33-54	Channery loam, channery silt loam, gravelly loam, very gravelly sandy loam	j	A-4, A-2	0-5	0-10     	55-85       	45-70       	30-70	10-65       	15-25       	NP - 5       

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Map symbol and soil name	Depth   USDA texture		Classif	Fragments		Percentage passing sieve number				T d mud d	Dlag	
	Depth	USDA texture		Ţ	>10	3-10	<u> </u>				Liquid   limit	ticity
			Unified	AASHTO	l	inches	4	10	40	200	ļ	index
	In				Pct	Pct					Pct	
Chadakoin	   54-72     	Very channery   loam, channery   silt loam, gravelly loam,   very channery   sandy loam	GM, GC-GM, CL-ML, SM	  A-2, A-4   	   0-5     	   0-15     	  55-85       	  45-70       	30-65	  10-65       	  15-25         	   NP - 5         
52B,52C,52D,52E, 52F:	 				į į	j I	 	į į	İ		İ	j 
Valois	0-6	Gravelly silt	ML, GM, GC-	A-4, A-2, A-1	0	0-5	65-95	50-92	30-90	15-80	20-40	1-12
	6-27	Gravelly silt loam, fine sandy loam, very fine sandy loam, loam, gravelly sandy loam	ML, GM, GC- GM, SM	A-4, A-2, A-1           	         	0-5	 	         	30-90	         	         	         
	27-48         	Gravelly loam, gravelly silt loam, gravelly sandy loam, gravelly fine sandy loam, gravelly very fine sandy loam	SM, ML, GM,   GC-GM    -  -	A-4, A-2, A-1   	0           	0-10           	65-90           	50-75             	30-70             	15-65             	15-25             	NP - 5             
	48-72	Very gravelly sandy loam, very gravelly fine sandy loam, very gravelly loam, gravelly silt loam	SM, GC-GM,   GM, GW, GW-   GM 	A-1, A-2, A-4         	0-5	0-15	45-90       	25-75         	10-65	2-60	15-25           	NP - 7         
53C: Valois	     0-6	  Gravelly silt   loam	  ML, GM, GC-   GM, SM	  A-4, A-2, A-1	     0	     0-5 	    65-95 	50-92	30-90	15-80	20-40	     1-12 
	6-27	Gravelly silt loam, fine sandy loam, very fine sandy loam, loam, gravelly sandy loam	ML, GM, GC- GM, SM	A-4, A-2, A-1           	0       	0-5       	65-95         	50-92       	30-90	15-80         	15-25         	NP - 5         

Table 21.-Engineering Properties-Continued

Map symbol	Depth	USDA texture	Classif	icatio	on		i	nents		-	e passi umber	-	Liquid	
and soil name			   Unified	1 7.	ASHTO		>10	3-10 inches		j 10	40	1 200	limit	ticity  index
	   In	-		A	DIRE		Pct	Pct	<del>- 1</del> 	.	40	200	Pct	Index
Valois	   27-48       	Gravelly loam, gravelly silt loam, gravelly sandy loam, gravelly fine sandy loam, gravelly very fine sandy loam	SM, ML, GM, GC-GM	  A-4,     	A-2,	A-1	0	0-10	   65-90     	  50-75       	30-70	15-65	  15-25         	   NP - 5   
	48-72	Very gravelly sandy loam, very gravelly fine sandy loam, very gravelly loam, gravelly silt loam	   SM, GC-GM,   GM, GW, GW-   GM 	  A-1,         	A-2,	A-4	0-5	0-15	  45-90     	  25-75         	  10-65         	2-60	  15-25           	   NP - 7       
  Volusia  	   0-7	Channery silt	  CL, CL-ML,   GC, SC	A-4			0	0-10	  65-95	60-92	50-90	35-80	15-25	5-10
	   7-16 	Toam  Channery loam,   channery silt   loam, silt   loam	GC, SC  SC, GC-GM,   CL-ML, CL	A-4			   0-1 	   0-10 	  65-95   	60-92	50-90	35-80	15-25	   5-10   
	16-45   	Channery silt   loam, channery   loam, silty   clay loam	SC, CL-ML, CL, SC-SM	A-4			0-5	0-25	50-95   	40-92	35-85	25-80	20-30	5-10   
	45-72	Very channery   silt loam,   very gravelly   loam, very   channery loam,   channery loam,   silt loam	GC, CL, CL- ML, GC-GM, SC	A-4,     	A-2,	A-1	0-5	0-25	45-92       	35-85	25-80	20-70	20-30	5-10       
Mardin	   0-6	  Channery silt   loam	  CL, GC, GM,   ML	A-4			   0	   0-10	  65-95	55-92	40-90	30-80	25-35	   5-10
	   6-17 	Idam  Silt loam,   channery silt   loam, gravelly   loam	CL, CL-ML, GC, SC-SM	A-4			   0-1 	   0-10 	  65-95   	55-92	40-90	30-80	15-25	   5-10   
	   17-41   		CL, CL-ML, GC, SC	A-4,	A-2,	A-1	0-5	0-20	45-90   	35-75	25-70	20-65	20-30	   5-10   

Map symbol	Depth	USDA texture	Classif	icati	on		Fragi	ments		-	e passi umber	-	  Liquid	   Plas-
and soil name	 		   Unified	   A	ASHTO		>10	3-10	4	1 10	40	200	limit	ticity
	In			<del></del>			Pct	Pct	<del>-</del>				Pct	
Mardin	   41-72   	Channery loam,   channery silt   loam, very   channery silt   loam	CL, CL-ML, GC, SC	  A-4,     	A-2,	A-1	0-5	   0-25   	  40-90     	  35-75   	  25-70     	20-65	  20-30   	   5-10   
55A,55B,55C:	 		l I				 		 					 
Darien		Silt loam  Silt loam,   loam, gravelly   channery silt   loam, silty   clay loam	ML, SM  CL, CL-ML,   GC-GM, SC	A-4,  A-4, 			0 0	0   0-5   	65-98  65-98 	50-96  50-96 		30-85	1	5-15   5-15   
	14-38     	Silt loam,   silty clay   loam, channery   gravelly silt   loam, clay   loam	CL, CL-ML, GC-GM, SC	A-4,       	A-6		0	0-5	65-98       	50-96       	45-90	35-85	25-35	5-15       
	38-72	Gravelly silt loam, channery clay loam, very channery silt loam, loam, silty clay loam	CL, CL-ML, GC-GM, SC	A-4,         	A-2,	A-6	0	0-10       	45-92         	30-85	25-80	20-75	25-35         	5-15           
56B,56C,56D:			ļ											
Chautauqua	0-9 	Silt loam	ML, CL-ML, SC-SM, SM	A-4,	A-6		0	0-5	80-95 	75-92 	60-90	40-80	20-40	1-12
	9-36   	Silt loam,   gravelly silt   loam, gravelly   loam	SM, ML, GM, CL-ML	A-4   			0	0-5   	65-95   	60-92	50-90	35-80	15-25	NP - 5   
	36-72	Gravelly loam, gravelly silt loam, very gravelly loam	SM, GM, GC- GM, CL-ML	A-4,	A-2-4		0	0-5	55-90     	45-75	35-70	25-65	15-25	NP - 5     
57A,57B,57C:														
Busti	0-8   8-13   13-39	Silt loam  Loam, silt loam  Gravelly loam,   silt loam,   loam, gravelly   silt loam	SM, ML, GM				0 0 0	0-5   0-5   0-5 	70-92	75-92  65-85  65-85 	50-80		20-40	1-12   1-12  NP-5 
	39-72	Gravelly loam,   gravelly silt   loam	SM, ML, GM	A-4			0	0-5 	65-90	50-75	40-70	30-65	15-25	NP - 5 

Table 21.—Engineering Properties—Continued

Table 21.-Engineering Properties-Continued

Map symbol	Depth	USDA texture	Classif	ication	i	nents		rcentage sieve n	-	ng	Liquid	
and soil name		 	   Unified	AASHTO	>10  inches	3-10 inches	   4	10	40	200	limit 	ticity  index
	In				Pct	Pct					Pct	
58B,58C:		 	 		 	 	 		 	 		 
Rushford	0-4	Channery silt	ML, SM	A-4, A-2, A-6	j	0-5		50-75				1-12 
	4-21	Channery silt   loam, channery   loam, channery   fine sandy   loam		A-4, A-2, A-6   	0     	0-10     	65-90     	50-75       	35-70     	25-65     	20-40     	1-12     
	21-28	Channery loam,   channery silt   loam	SM, SC-SM,   ML, GM 	A-4, A-2, A-6 	0   	0-10 	65-90   	50-75	40-70   	30-65   	20-40	1-12   
		Silt loam, silt		A-4	0	0	100	1	80-100		0-20	NP-4
	36-72	Stratified silt   loam to silty   clay loam,   silt	ML, CL-ML     	A - 4     	0   	0     	100     	92-100       	80-100     	65-95     	0-20     	NP - 4     
59B,59C,59D:												İ
Yorkshire	0 - 8	Channery silt   loam	ML, GC, CL,   SM	A-4, A-6	0 	0-5 	İ	50-92 	İ	İ	İ	3-15 
	8-19	Channery silt   loam, channery   loam, silty   clay loam	ML, GC, CL,   SC 	A-4, A-6   	0   	0-10   	65-95   	50-92   	40-90   	30-85   	25-40   	3-15   
	19-56		SC-SM	A-4, A-2-4,   A-6 	0	0-20	55-90	50-75	40-70	30-65	20-35	3-15
	56-72	loam   Channery silt   loam, channery   loam, flaggy   silt loam,   very channery   silty clay   loam	GC, CL-ML, CL, GM	A-4, A-2-4,   A-6	O       	0-20	  40-85       	  35-70         	  25-70       	  20-65       	20-35	   3-15       

Map symbol	Depth	USDA texture	Classi	fication	<u> </u>	ments	Pe	ercentag sieve n	-	-	Liquid	
and soil name			Unified	AASHTO	>10  inches	3-10  inches	4	10	40	200	limit	ticity  index
	In	-		-	Pct	Pct	¦	-		·	Pct	
60A,60B,60C,60D:	 				[ [							
Napoli	0-9 9-23	Silt loam  Silty clay   loam, silt   loam, very   channery silt   loam, channery	CL, ML  CL, GC, SC   	A-6, A-7 A-6, A-2-6, A-7	0 0	0-5 0-10		50-92		35-85 30-75	1	10-20  10-20 
	23-46	clay loam, channery silt loam, very channery silty clay loam,	     CT	A-4, A-6, A-7	0	0-20       	  55-90       	40-75	35-70	25-65	  25-45       	   5-15       
	   46-72   	flaggy loam  Channery silty   clay loam,   very channery   loam, flaggy   silt loam	  ML, GM, GC,   CL 	A-4, A-2, A- 6, A-7	   0   	0-20	  45-80     	30-70	  25-70     	20-65	  25-45     	   5-15     
61B,61C,61D,61E 61F:		   	   		   	   	   					   
Schuyler	0-6	Silt loam	CL, CL-ML,	A-6, A-4, A-2	0	0-5	65-95	50-92	35-90	20-80	25-40	5-20
	6-35	Silt loam,   channery silty   clay loam,   very channery   loam	CL, CL-ML,	A-6, A-4	0     	0-5     	50-95   	50-92	40-90	30-80	25-40	5-20
	35-72	Channery silty clay loam, very channery silt loam, channery loam	CL, CL-ML, GC, SC	A-6, A-4	0   	0-15     	45-80       	30-70	25-70	20-65	25-40	5-20   
62B,62C,62D:			<u> </u>		 							
Mardin	0-6 	Channery silt	CL, GC, GM,	A - 4 	0 	0-10	65-95 	55-92 	40-90 	30-80	25-35	5-10
	6-17   	Silt loam,   channery silt   loam, gravelly   loam	!	A-4 	0-1   	0-10   	65-95	55-92	40-90	30-80	15-25	5-10   
	17-41   	Channery silt   loam, channery   loam, very   channery loam	CL, CL-ML, GC, SC	A-4, A-2, A-1	0-5	0-20	45-90	35-75	25-70	20-65	20-30	5-10   

Table 21.-Engineering Properties-Continued

Table 21.-Engineering Properties-Continued

Map symbol	Depth	USDA texture	Classi	ication	Fragi	ments			e passi umber		Liquid	
and soil name			   Unified	AASHTO	1	3-10  inches		1 10	l 40	1 200	limit	ticity  index
	In			AADIIIO	Pct	Pct				200	Pct	Index
Mardin	41-72	Channery loam,   channery silt   loam, very   channery silt   loam	  CL, CL-ML,   GC, SC   	  A-4, A-2, A-1   	   0-5   	   0-25   	  40-90     	  35-75     	  25-70     	  20-65     	  20-30   	   5-10   
63B,63C,63D:		]	 			 	 		-			 
Langford	0-7	  Channery silt   loam	CL, GM, ML,	A-4, A-2	0	0-10	65-95	55-92	40-90	25-80	25-35	5-10
	7-25	Silt loam,   silty clay   loam, channery   silt loam,	CL, CL-ML, GC-GM, SC	A-4, A-2	0   	0-10	60-95   	55-92   	40-90   	30-80	  15-25   	5-10
	25-44	loam, gravelly silt loam, channery silty clay loam, very channery	İ	A-6, A-2   	0	0-25	  45-90     	  30-75       	  25-70       	  20-65       	  25-35       	  10-15     
	44-72	loam  Gravelly silt   loam, channery   silt loam,   channery silty   clay loam,   very channery   loam	İ	A-6, A-2	0       	0-25       	  45-90         	  30-75         	  25-70         	  20-65       	  25-35         	  10-15       
64C:			 				 					
Mardin	0-6	Channery silt	CL, GC, GM,	A-4	0	0-10	65-95 	55-92	40-90	30-80	25-35	5-10
	6-17	Silt loam,   channery silt   loam, gravelly   loam	CL, CL-ML, GC, SC-SM	A-4	0-1	0-10	65-95   	55-92   	40-90   	30-80	15-25	5-10
	17-41	!	CL, CL-ML, GC, SC	A-4, A-2, A-1	0-5	0-20	45-90   	35-75   	25-70	20-65	20-30	5-10 
	41-72	Channery loam,   channery silt   loam, very   channery silt   loam	CL, CL-ML, GC, SC	A-4, A-2, A-1	0-5	0-25	40-90     	35-75     	25-70	20-65	20-30	5-10

Map symbol	Depth	USDA texture	Classi	fication	i	ments		rcentag sieve n	-	-	Liquid	
and soil name	   		Unified	AASHTO	>10  inches	3-10  inches	4	10	40	200	limit 	ticity  index
	In	.		_	Pct	Pct	 				Pct	 
66B:	 		 									
Volusia	   0-7 	Channery silt	CL, CL-ML, GC, SC	A-4	0	   0-10 	  65-95 	60-92	50-90	35-80	15-25	   5-10 
	7-16   	Channery loam,   channery silt   loam, silt   loam	SC, GC-GM, CL-ML, CL	A-4	0-1	0-10	65-95     	60-92   	50-90   	35-80	15-25	5-10   
	16-45   	Channery silt   loam, channery   loam, silty   clay loam	SC, CL-ML,   CL, SC-SM 	A-4 	0-5   	0-25   	50-95   	40-92   	35-85   	25-80	20-30	5-10   
	45-72	Very channery   silt loam,   very gravelly   loam, very   channery loam,   channery loam,   silt loam	GC, CL, CL- ML, GC-GM, SC	A-4, A-2, A-1	0-5	0-25	<b>4</b> 5-92         	35-85	25-80	20-70	20-30	5-10       
67A,67B:	 		 			 						 
Dalton	0-9   9-17 	Silt loam  Silt loam, very   fine sandy   loam	ML  ML, CL-ML 	A-4   A-4 	0   0 	0-2   0-2 		92-100  92-100 			1	NP - 4   NP - 6 
	17-29	!	ML, CL-ML	A-4	0	0-2	95-100	92-100	75-100	45-90	0-20	NP-6
	29-72   	!		A-4, A-2	0	0-10	60-90     	50-75     	40-70	30-65	0-25	2-6   
68A,68B,68C:	 				<u> </u>	 	 					 
Volusia	0-7	Channery silt	CL, CL-ML, GC, SC	A-4	0	0-10	65-95 	60-92	50-90	35-80	15-25	5-10
	7-16		SC, GC-GM, CL-ML, CL	A-4	0-1	0-10	65-95	60-92	50-90	35-80	15-25	5-10   
	16-45		SC, CL-ML, CL, SC-SM	A-4	0-5	0-25	50-95   	40-92   	35-85   	25-80	20-30	5-10

Table 21.-Engineering Properties-Continued

Table 21.-Engineering Properties-Continued

Map symbol	Depth	USDA texture	Classif	icati	on		Fragn				e passi umber		Liquid	l
and soil name			   Unified	7	ASHTO		>10	3-10 inches	4	10	40	1 200	limit	ticity index
			Unitied	-  <del>-</del>	ASHIO		Pct	Pct		-		200	Pct	Index_
Volusia		  Very channery   silt loam,   very gravelly	GC, CL, CL- ML, GC-GM,	  A-4,	A-2,	A-1			  45-92 	35-85	25-80	20-70	20-30	5-10
		loam, very channery loam, channery loam, silt loam												
69A,69B,69C:			İ				į į			į		İ	į	
Erie	0-9	loam	ML, GM, SM 	A-4,			0			İ	40-90	İ	30-40	5-10
	9-14	Silt loam,   channery silty   clay loam,   channery silt   loam, channery   loam		A-4,     	A-2		0     	0-10	65-95       	50-92       	40-90       	30-85	15-25         	5-10
	14-45	Channery silt   loam, channery   silty clay   loam, very   channery loam	CL, GC, SC	A-6,	A-2		0	0-25	45-90	30-75	25-70	20-65	25-35	10-15
	45-72	· -	SC, GC, CL	A-6,	A-2		0	0-25	45-90	30-75	25-70	20-65	25-35	10-15
71E,71F:			 						<u> </u>					
Mongaup	0-4	Channery silt   loam	ML, GM, CL-	A-4,	A-2,	A-1	1-5	0-5	65-95	50-92	30-90	15-80	0-20	NP-5
	4-27	Channery silt   loam, gravelly   silt loam,   loam, gravelly	SM, ML, GM, CL-ML	A-4,	A-2,	A-1	0-5	0 - 5	50-95	40-92	25-90	10-80	0-20	NP-5
	27-37	sandy loam  Unweathered   bedrock					0	0	 					
72B,72C,72D,72E,		   	   				 							
Towerville	0-7	Silt loam	CL, CL-ML,	A-6,	A-4,	A-2	0	0-5	65-95	50-92	40-90	30-80	25-40	5-20
	7-23	Silt loam,   channery loam,   channery silty   clay loam	CL, CL-ML, GC, SC	A-6,	A-4		0	0-15	65-95	50-92	40-90	30-85	25-40	5-20

Table 21.-Engineering Properties-Continued

Map symbol	Depth	USDA texture	Classi	fication	Fragi	nents		rcentage sieve n	e passi: umber	ng	  Liquid	   Plas-
and soil name	İ	İ			>10	3-10	İ				limit	ticity
		İ	Unified	AASHTO	inches	inches	4	10	40	200	l	index
	In				Pct	Pct					Pct	
Towerville	23-32	Channery silty   clay loam,   very channery   silt loam,	CL, CL-ML,   GC, SC	A-6, A-4	   0   	0-15	  45-92   	  30-85   	  25-80   	  20-75   	  25-40   	   5-20   
	32-42 	loam  Weathered   bedrock	 		   0 	0	   	   	   	   		   
73B,73C:		İ	İ					İ		İ		
Gretor	0-8	Channery silt	GM, MH, ML,	A-7, A-6	0-1	0-10	65-95 	55-92	50-90	30-85	35-55	10-20
	8-21	Channery silt   loam, channery   loam, clay   loam, silty   clay loam	GM, ML, SM	A-7, A-6	0-1	0-10	  65-95     	   55-92     	  50-90   	30-85   	35-50	  10-20   
	21-25		SC-SM, SM	A-4	0-1     	0-15	  65-95     	55-92     	50-90     	30-85	20-30	1-7
	25-29	loam  Unweathered   bedrock	 		0	0	   	   	   	   		   
74: Ashville	0-9	    Silt loam	    ML, OL 	  A-5, A-6, A-7	     0	     0	    85-100 	    75-100 	    60-100 	    35-90 	  40-50	     5-15 
	9-44	Silt loam,   channery silt   loam, channery	  CL, CL-ML 	A-4, A-6	   0 	0	  85-100   	  75-100   	  60-100   	  40-95   	  20-35   	   5-15   
	44-72	loam, silty clay loam Channery silt loam, very gravelly silt loam, gravelly loam, fine sandy loam	SC, GC, CL-	A-4, A-2, A-6	   0   	0-5	  50-92     	  40-85     	  25-80     	  15-70     	  20-35     	   5-15     
75: Alden	0-6 6-25	  Mucky silt loam  Silt loam,   silty clay   loam, very   fine sandy   loam	OL, ML CL, CL-ML	A-5, A-7 A-4, A-6	   0   0	0 0	1	1	  60-100  60-100 	1	  40-50  20-35 	   5-15   5-15     

Table 21.-Engineering Properties-Continued

Map symbol	Depth	USDA texture	Classif	ication	İ	ments		rcentag	e passinumber	ng		   Plas-
and soil name			Unified	AASHTO	>10 inches	3-10 inches		10	1 40	200	limit 	ticity
	In				Pct	Pct					Pct	
Alden	25-72	Silt loam,   silty clay   loam, loam,   gravelly fine   sandy loam,   gravelly loam	SC, GC, CL-	A-4, A-2, A-6	0	   0-5     	  65-95       	  50-92     	  35-90     	  20-85     	  20-35     	   5-15     
76A,76B,76C:			l I			 	 	 	 	 		 
Orpark	0-8 8-22	Silt loam  Silt loam,   silty clay   loam, channery	ML, OL ML, CL	A-7, A-5, A-4  A-6, A-4 	0	0   0 			65-100  65-100 			6-15   6-15 
	22-24	silt loam  Silt loam,   silty clay   loam, channery   silty clay   loam, channery	İ	A-6, A-4 	0	   0-5   	  65-100     	  50-100     	  45-100     	  35-95     	  30-40     	   6-15     
	24-26	silt loam  Extremely   channery silty   clay loam,   very channery	GW	A-2-6, A-2,   A-4 	0-7	   0-55   	  50-100   	  15-100   	  10-100   	   5-95   	30-40	   6-15   
	26-36	silt loam  Unweathered   bedrock	 	 	0	   0 	   	   	   	   		   
77A:			 			l İ	<u> </u>	 	l I	 		<u> </u>
Chippewa	0-6	Silt loam	ML, OL	A-5, A-7	0	0-5	65-100	55-100	40-95	30-90	40-50	5-15
	6-19	Silt loam,   silty clay   loam, channery   silt loam,   loam, clay   loam, channery   silty clay   loam	<u> </u> 	<b>A-4</b>     	0-1	0-10       	  65-100       	  50-100       	  40-95         	  30-90       	25-35	   5-10       
	19-41	1	 	A-2, A-4	0-2	0-15       	55-85         	35-70       	  25-70       	15-65         	15-25         	5-10       

Map symbol	Depth	USDA texture	Classif	ication	Fragi	ments			e passi: umber	ng	Liquid	   Plas-
and soil name				Ţ	>10	3-10	İ				limit	ticity
			Unified	AASHTO	l	inches	4	10	40	200		index
	In		 		Pct	Pct		l I		 	Pct	
Chippewa	41-72	Channery silt   loam, very   channery loam,   channery fine   sandy loam,   channery silty   clay loam	GC, CL-ML, GM, ML, SM	A-2, A-4     	0-2	0-15         	  55-85         	  35-70       	25-70	15-65       	25-35           	5-10       
78A,78B,78C,78D:			İ	İ	İ	İ	İ	İ	İ	j	i	İ
Hornell	0-8 8-28	Silt loam  Silty clay   loam, silty   clay, channery   silty clay   loam, clay	ML, CL  CL, CH, GC,   ML 	A-7, A-6  A-7, A-6 	0 0	0 0-5	1	1	40-100  45-95   		35-49  35-55   	10-22  10-30 
		Channery silty   clay loam,   very channery   silty clay,   silty clay   loam, channery   clay	CL, CH, GC, ML	A-7, A-6, A-2         	0	0-5	45-92         	30-85	25-80         	20-75         	35-55           	10-30         
	34-44	Unweathered bedrock	 		0   	0   	   	   	   	   	   	   
78F:			İ		İ	j	İ	j	İ	į	İ	İ
Hornell	0-8 8-28	Silt loam  Silty clay   loam, silty   clay, channery   silty clay   loam, clay	ML, CL  CL, CH, GC,   ML 	A-7, A-6  A-7, A-6 	0   0   	0   0-5   	1	50-100  50-98   	40-100  45-95   	30-95  40-85   	1	10-22  10-30 
	28-34		CL, CH, GC, ML	A-7, A-6, A-2       	0	0-5	45-92         	30-85	25-80	20-75         	35-55           	10-30         
	34-44		 		0	0	 	   		 		   
Hudson	0-7	Silt loam	  ML, CL-ML,   CL, OL	A-6, A-4, A-7	   0 	   0 	75-100	65-100	50-100	35-95	25-48	   5-19 
	7-16	Silt loam,   silty clay   loam, silty   clay	CH, CL	A-7, A-6   	0   	0   	75-100     	65-100     	50-100   	30-95	35-65     	15-35     

Table 21.-Engineering Properties-Continued

Table 21.-Engineering Properties-Continued

Map symbol	Depth	USDA texture	Classif	ication	Fragi	ments		rcentage sieve n	e passi umber	ng	Liquid	   Plas-
and soil name			Unified		>10	3-10		10	i 40	1 200	limit	ticity
			Unified	AASHTO	Pct	Inches	<del>-4</del>		40	200	Pct	index
	111				FCC		i	! 		 	FCC	! 
Hudson	16-38 	Silty clay,   silty clay   loam	CH, CL	A-7, A-6   	0   	0   	90-100   	85-100   	70-100   	60-95   	35-65	15-35   
	38-72       	Silty clay,   silt loam,   stratified   silty clay to   silty clay   loam to silt	CH, CL         	A-7, A-6   	0       	0       	90-100         	85-100       	70-100   	60-95         	35-65         	15-35       
79B,79C,79D,79E, 79F:	 				 	 	 	 	i I	 		 
Mongaup	0-4	Channery silt	ML, GM, CL-	A-4, A-2, A-1	0-1	0-5	65-95	50-92	30-90	15-80 	0-20	NP-5
	4-27	Channery silt   loam, gravelly   silt loam,   loam, gravelly   sandy loam	İ	A-4, A-2, A-1   	0-5	0-5	50-95     	40-92     	25-90     	10-80     	0-20	NP - 5     
	27-37	Unweathered   bedrock	 		0	0	   	   	   	   		   
80A,80B,80C:			İ		İ	İ	İ		İ	İ	İ	
Fremont	0-9   9-39   	Silt loam  Silt loam,   silty clay   loam, channery   silty clay   loam	CL, ML  CL, GC, SC   	A-6, A-7  A-6 	0   0   		65-92  65-92     			35-75  35-75     	35-45  25-40 	10-20  10-20       
	39-72	Channery silty   clay loam,   channery silt   loam, very   channery silty   clay loam	GC, SC-SM	A-4, A-2, A-   1, A-6	0     	0-10       	  45-85       	30-70	  25-70       	  20-65       	25-40         	5-15     
81B,81C,81D,81E: Varysburg	0-5	Gravelly silt	CL-ML, GC,	  A-4, A-2, A-1	0	0-10	  55-92	45-85	30-80	  15-70	20-30	2-10
	   5-22     	loam  Gravelly loam,   gravelly silt   loam, very   gravelly loam,   very gravelly   sandy loam	GM, ML, SM  SC-SM, GM,   ML, SM   	  A-4, A-2, A-1   	   0   	   0-10   	  55-92     	  45-85       	30-80	  15-70       	   0-30     	  NP-10     

Map symbol	Depth	USDA texture	Classif	ication		Fragi	ments		rcentage			Liquid	Plag
and soil name	рерсп	USDA texture				>10	3-10		sieve n	umber			Plas-  ticity
did boll name			Unified	AASI	нто		inches	4	10	40	200		index
	In					Pct	Pct					Pct	
Varysburg	22-33	Very gravelly   loam, very   gravelly sandy   clay loam,   very gravelly   sandy loam	GC-GM, GM, GW-GM, ML, SM	  A-1, A-     	-2, A-4	0	0-10	45-92	  30-85     	  15-75     	  10-60     	0-30	  NP-10     
	33-48	: -	CL, CL-ML	  A-4, A- 	- 6	0	0	100	96-100	  85-100 	  75-95 	15-30	   5-15 
	48-72		CL, CL-ML	   A-4, A-       	- 6	0	0	100	96-100	   80-100       	  70-95       	15-30       	5-15
82F:				 			 			 	l I		 
Rock outcrop	0-60	Unweathered bedrock		 		0	0			 			 
Manlius	0-4	Channery silt   loam	ML, GM, CL- ML, SM	  A-4, A- 	-2	0	0-15	55-90	50-75	  40-70 	30-65	25-35	   4-10 
	4-23	Channery silt   loam, very   channery silt   loam, very   channery loam	GM, GC-GM	<b>A-4, A</b> -     	-2, A-1	0	0-25   	45-75	35-65     	25-60     	20-55     	25-35	4-10     
	23-34		GM, GC-GM	A-2, A-	-1, A-4	0-1	0-25	40-75	25-55	15-50	10-45	25-35	4-10
	34-44	Unweathered   bedrock		     		0	0			   	   		   
84B,84C: Elko	0-6 6-26	loam, channery loam, loam, channery silty	CL, CL-ML CL, CL-ML, GC, SC-SM	  A-4  A-4, A- 	-7, A-6	0	0-5 0-10	65-95 55-95	1	  30-90  35-90 	  15-80  25-85 	  20-40  20-45 	   4-15   4-25 
	26-64	clay loam  Channery silt   loam, very   channery loam,   channery silty   clay loam	GC, CL-ML, CL, SC-SM	   <b>A</b> -6, <b>A</b> -     	-4, A-7	0	   0-15   	55-95	  45-92     	  25-90   	  10-85     	  20-45   	   4-25   

Table 21.-Engineering Properties-Continued

Table	21Engineering	Properties-Continued

Map symbol	Depth	USDA texture	Classi	fication	_i	ments	Pe	_	ge passi number	-		   Plas-
and soil name			   Unified	AASHTO	>10  inches	3-10 inches	   4	10	40	200	limit 	ticity
	In				Pct	Pct			į –		Pct	ļ — —
Elko	64-72	Very channery   loam,   extremely   channery loam,   very channery   silt loam,   channery sandy   loam,   extremely   channery silty   clay loam	       	A-2, A-4, A- 6, A-7	0	0-20	  45-90         	25-75	10-70	5-65               	20-45	4-20
85B,85C,85D:			<u> </u>				 					 
Onoville	0-8 8-22	Silt loam  Silt loam,   loam, silty   clay loam,   channery silt   loam, very   flaggy loam	CL, CL-ML  CL, CL-ML,   GC, SC-SM	A-4, A-6  A-6, A-4, A-	07 0	0   0-5   		1	1	30-80	20-40	4-15   4-25 
	22-65			A-6, A-4, A-	7 0	0-10       	   55-95     	45-92	35-90	25-85	20-45	4-25
	65-72	Channery clay loam, channery silty clay loam, channery loam, very channery silt loam, very channery clay loam, very flaggy loam	İ	A-6, A-4, A- 2, A-7	0	0-10	<b>4</b> 5-90           	25-75	15-70             	10-65	20-45	4-20
86B,86C,86D: Eldred	0-3 3-14	  Silt loam  Silty clay   loam, channery   silt loam,   loam	  CL, CL-ML  CL, ML	A-4, A-6   A-6, A-7	0 0	   0-5   0-5 		1	1	35-85	  20-40  35-45 	   4-15  10-25 
	14-42	ı		A-4, A-6, A-	7   0     	0-10	  65-95   	50-92	45-90	35-85	30-45	   5-15     

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Map symbol	Depth	USDA texture		C	lassif	icati	on		Fragi	ments	Pe		e passi umber		Liquid	   Plas
and soil name	Dopon					1			>10	3-10		51010 1			limit	ticit
		İ	į ·	Unif	ied	į A	ASHTO		inches	inches	4	10	40	200	Ï	index
	In	İ							Pct	Pct					Pct	
Eldred	42-72	Channery silty   clay loam,   very channery   silt loam,   channery clay   loam	  ML,         	GM,	SM		A-2, A-7	<b>A</b> -	   0     	   0-15     	  45-92       	  30-85     	  25-80     	  20-75     	30-45	   5-15       
87B,87C:									i	 	¦					
Shongo	0-6 6-24	Silt loam  Silt loam,   silty clay   loam, channery	CL,	CL-		A-4, A-4,			0 0-3	0-5 0-5		1	45-90		1 -	5-15   5-15 
	24-56	1	CL,     	CL-	ML	A-6,	A-4,	A-	0-3   	0-10   	50-95     	45-92	40-90	30-85	20-45	5-25     
	56-72	· -	GC,           	CL-	ML, CL	A-6, 7-6		A-	0-3	0-10       	50-95       	45-92           	40-90       	30-85	20-45	5-25       
88A,88B,88C,88D:									 	 	 					
Ivory	0 - 6	Silt loam	ML				A-4, A-7-6	A-	0	0-8	70-95	60-92	55-90	40-85	35-50	5-20
	6-14	Channery silt   loam, channery   silty clay   loam, silty   clay, clay		CH,	ML	A-7,	A-6,	A-4	0     	0-8     	70-95       	60-92	55-90	40-85	30-55	5-30     
	14-48		sc		ML,	A-7,	A-6,	A-4	0   	0-15     	70-95     	60-92	55-90	45-85	30-55	5-30   
	48-72	Channery silty   clay loam,   channery silty   clay, very   channery clay	ML		GC,	A-7,   4, 	A-6, A-2	A-	0	0-20	  45-90   	  35-75     	25-70	20-70	30-55	5-30   

Table 21.-Engineering Properties-Continued

Table 21.-Engineering Properties-Continued

Map symbol	Depth	USDA texture	ļ	Classi	ficati	on.		i	ments		_	e passi umber	-	Liquid	
and soil name		İ	   1	Unified	24	ASHTO		>10 inches	3-10 inches	4	10	40	200	limit	ticity  index
	In				-i			Pct	Pct	i				Pct	
89B,89C:									 	 					 
Portville	0-7 7-22	Silty clay loam  Channery silt   loam, silty   clay loam,		CL-ML CL-ML	A-4,			0 0-1	0-5 0-5		75-96  45-92 	60-90  35-90 	40-85  25-85 	25-40 20-40	5-15   5-15 
	22-50	loam  Channery silt   loam, channery   silty clay   loam, loam,   clay loam		CL, CL-M	L A-6,		A-	0-3	   0-10   	  70-95     	  45-92     	  35-90     	  25-85     	  20-45     	   5-25     
	50-72		       	CL-ML, C	L A-6, 7-6		<b>A</b> -	0-5	0-10	45-90       	30-75	25-70	20-70	20-45	5-25
90A,90B: Brinkerton	0-7	    Silt loam	    CL,	CL-ML	    A-4,	<b>A</b> -6		0	     0-5	    90-100	    85-100	    70-100	    55-95	25-40	     5-15
		Silty clay   loam, silt   loam		CL-ML		A-6		0	0-5	1	1	70-100		20-40	5-15
	25-45	Channery silt   loam, clay   loam, channery   loam, channery   silty clay   loam		CL-ML	A-6,	A-4,	A-7	0       	0-10	70-100     	60-100       	50-100       	35-95       	20-45	5-25       
	45-72	Channery silt loam, extremely channery loam, silt loam, very gravelly silty clay loam		CL-ML, , SC	A-6,	A-4,	<b>A-</b> 7	0	0-20	35-92	20-85	15-80           	10-75           	20-45	5-25

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Map symbol	   Depth	USDA texture	Classi 	fication	.ii	ments		rcentag sieve n		ng	  Liquid	1
and soil name	İ	i	Unified	AASHTO	>10	3-10	4	1 10	1 40	1 200	limit	ticit:  index
				_	Pct	Pct	¦	<del></del> -			Pct	======
		İ	į	j	İ	j	j	j	j	j	j	j
91A:										ļ		
Palms	0-12 12-32	Muck   Muck	PT  PT	A-8 A-8	0	0   0	 			 		NP NP
		Fine sandy	SC, CL-ML,	A-6, A-4, A-	0	0-10	1	1	40-100	1	20-45	NP   5-20
	32 72	loam, gravelly   loam, clay   loam, silty   clay loam		2, A-7		0 10       			10 100       			3 20       
92:							ļ	į	ļ			
Carlisle	0-72	Muck	PT	A-8	0	0						NP
93: Saprists,			   			   	   	   	   	   		   
inundated		Muck	PT	A-8	0	0	j			j		NP
	38-72         	Gravelly loam,   fine sandy   loam, very   gravelly loamy   sand, clay   loam, silty   clay	SC, CL-ML,   CL, SC-SM   	A-6, A-4, A-   2, A-7 	0           	0-10         	70-100             	65-100           	40-100           	25-95           	20-45           	5-20         
94B,94C:		İ	İ	İ	İ	İ	İ	İ	İ	İ		İ
Frewsburg	0-6	Silt loam	CL, CL-ML	A-4, A-6	0	0	1	50-92	1	30-80	1	4-15
	6-18       	Channery silty   clay loam,   channery silt   loam, flaggy   loam, silt   loam, clay   loam	CL, CL-ML, GC, SC-SM	A-6, A-4	0         	0-5       	65-95         	50-92         	40-90         	30-85         	20-40       	4-20       
	18-38	Channery silty   clay loam,   extremely   channery clay   loam, channery   loam, very   channery silt   loam	GC, SC-SM	A-6, A-4	0           	0-10         	35-90         	20-75           	15-70           	10-65         	20-40	4-20         
	38-48	Unweathered   bedrock			0	0		ļ		j		

Table 21.—Engineering Properties—Continued

Table 21.-Engineering Properties-Continued

Map symbol	Depth	USDA texture	Classi	fication	Fragi	ments			e passi umber		Liquid	Dlag
and soil name	Depth	USDA CEXCUIE	l	1		3-10		sieve i	uniber			ticity
and Boll name			Unified	AASHTO		inches	4	10	40	200		index
	In		į		Pct	Pct					Pct	
95B,95C,95D,95E   95F:		   	   			   	   					   
Mandy	0-2	Channery silt	SM, CL-ML,	A-4	0	0-15	70-92	65-85	50-80	35-70	25-35	4-10
	2-24	Channery silt   loam, very   channery silt   loam, extremely	GM, GC-GM     	A-2, A-4	0-5	0-30	  40-85     	30-70	  25-70     	20-65	25-35	   4-10   
	24-33	channery loam Extremely flaggy silt loam, very channery silt loam, channery	  GM, GC-GM     	A-2, A-4	0-10	   0-40   	  40-85     	  30-70     	  25-65     	  20-65     	  25-35     	   4-10   
	33-43	loam  Unweathered   bedrock			0	   0 	   					   
96B,96C,96D,96E   96F:		   	   			   	 					   
Carrollton	0-2	Channery silt	CL, CL-ML, GC, SC-SM	A-4, A-6	0	0-5	65-90	50-75	40-70	30-65	20-40	4-15
	2-23	Channery silt   loam, channery   silty clay   loam, channery   loam, flaggy   clay loam	İ	A-4, A-6	0-2	0-10     	65-90       	50-75	40-70	30-65	20-40	4-15     
	23-30			A-4, A-6	0-5	0-15       	50-90       	40-75       	35-65	25-65	20-40	4-15       
	30-40	Unweathered   bedrock	     		0	   0 	   					   
97B,97C,97D,97E, 97F: Kinzua	0-3	      Channery silt	    CI CI MI	    A-4, A-6	0	     0-5		55-92	140.00	30-80	20.40	       4-15
VIIIZUA	0-3	loam	CL, CL-ML, GC, SC-SM	A-4, A-0	"	0-5	03-95	33-92	40-90	30-80	20-40	4-15

Classification Fragments Percentage passing Map symbol Depth USDA texture Liquid Plassieve number -and soil name 3-10 limit | ticity >10 Unified AASHTO 4 10 index inches inches 40 200 In Pct Pct Pct Kinzua-----3-45 Channery silt CL, CL-ML, A-4, A-6 0-2 65-95 | 55-92 | 40-90 30-85 4-15 0-10 20-40 loam, very GC, SC-SM channery silt loam, silty clay loam, channery loam 45-72 Very channery GC, CL-ML, A-2, A-1-b, 0-5 0-10 | 45-92 | 35-85 | 25-80 | 20-75 | 20-40 4-15 silt loam, CL, SC-SM A-4, A-6 channery silty clay loam, very channery loam, clay loam 98D,98E: Kinzua-----0-3 Channery silt CL, CL-ML, A-4, A-6 0 0-5 65-95 | 55-92 | 40-90 30-80 20-40 4-15 GC, SC-SM loam 3-45 Channery silt CL, CL-ML, A-4, A-6 0-2 |65-95 |55-92 |40-90 30-85 20-40 4-15 loam, very GC, SC-SM channery silt loam, silty clay loam, channery loam 45-72 Very channery GC, CL-ML, A-2, A-1-b, 0-5 0-10 | 45-92 | 35-85 | 25-80 | 20-75 | 20-40 4-15 CL, SC-SM A-4, A-6 silt loam, channery silty clay loam, very channery loam, clay loam 99B,99C,99D: Buchanan-----0-6 Silt loam CL, CL-ML A-4, A-6 0 0-10 | 60-100 | 45-100 | 30-100 | 15-90 4-15 CL, CL-ML, A-6, A-4, A-7 6-33 Channery silt 0-5 0-10 60-100 45-100 40-100 20-90 4-25 20-45 loam, channery SC-SM clay loam, gravelly loam, sandy clay loam 33-45 Channery silt SC, CL, CL-A-6, A-4, A-7 0-5 0-10 | 45-95 | 30-92 | 25-90 | 10-80 | 20-45 4-25 loam, channery ML, GC, SC-SM loam, very

gravelly clay loam, sandy clay loam

Table 21.-Engineering Properties-Continued

Table	21Engineering	Properties-Continued
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Map symbol	Depth	USDA texture	Classi	fication	Frag	ments		-	e passi:	ng	Liquid	   Plas-
and soil name	_	j			>10	3-10	İ					ticity
		İ	Unified	AASHTO	inches	inches	4	10	40	200	i	index
	In				Pct	Pct	į ——			İ	Pct	i — —
Buchanan	45-72	Very gravelly   silt loam,   channery silt   loam, clay   loam, gravelly   loam, sandy   clay loam	GC, CL, CL- ML, GC-GM, SC	A-2, A-4, A- 6, A-7	0-5	0-20	  45-95         	30-92	25-90           	  10-80       	20-45	4-20       
100:		]	] 									 
Udorthents	0-4	Gravelly loam, gravelly loamy sand, gravelly sandy loam, loamy sand	ML, SM	A-4, A-2, A-	1 0	0-15	60-80     	55-75     	30-75     	10-65     	0-25	NP - 8     
	4-70	Very gravelly loamy sand, very gravelly silty clay, very gravelly loam, gravelly silt loam, gravelly silty clay, loamy sand	İ	A-2, A-1, A-	4 0	0-15               	30-60	25-55	15-55	5-50	0-25             	NP - 8 
101:		 					 					l I
Udorthents,		İ	İ		İ	İ	i	İ	ì	İ	İ	j
refuse		j	į	j	İ	İ	i	İ	İ	İ	İ	İ
substratum	0-24	Gravelly loam,	SC, ML, CL,	A-4, A-2	0	0-5	60-100	55-100	30-100	10-90	0-30	NP-15
	24-70	Variable			0	0						
102C:		<u> </u> 	 						ļ			 
Mandy	0-2	Channery silt	SM, CL-ML,	A-4	0	0-15	70-92	65-85	50-80	35-70	25-35	4-10
	2-24	Channery silt   loam, very   channery silt	GM, GC-GM	A-2, A-4	0-5	0-30	40-85	30-70	25-70	20-65	25-35	4-10 
	24-33	loam,   extremely   channery loam  Extremely   flaggy silt   loam, very   channery silt   loam, channery   loam	     GM, GC-GM     	A-2, A-4	0-10	     0-40   	    40-85     	    30-70     	    25-65     	    20-65     	    25-35     	     4-10     

			Classif	ication	Frag	ments	Pe	rcentag	e passi	ng		
Map symbol	Depth	USDA texture	İ		İ		İ	sieve n	umber		Liquid	Plas-
and soil name					>10	3-10					limit	1
			Unified	AASHTO	inches	inches	4	10	40	200	.	index
	In				Pct	Pct					Pct	
Mandy	33-43	Unweathered bedrock			0	0	   			   		   
Rock outcrop	   0-60 	Unweathered	     		0	0	   					   
103C:	 		1									 
Knapp Creek	0-3	Moderately   decomposed   plant material	OL, PT	A-4, A-8	0	0	     					   
	3-11	Gravelly loamy   sand	SC-SM, GM,	A-1, A-2, A-4	0	0-15	45-95	25-92	10-75	5-50	15-30	NP - 8 
	11-22       	Very gravelly   sandy loam,   gravelly sandy   loam, loam,   extremely   gravelly loamy   sand, gravelly   fine sandy   loam	 	A-1, A-2, A-4       	0	0-20	45-95         	25-92	10-75         	5-50         	15-30         	NP - 8       
	   22-48     		İ	A-1, A-2, A-4     	   0     	0-40	  45-95     	  25-92       	  10-75       	   5-50     	  15-30     	   NP - 8       
	48-58		 	A-1     	0	0-40	40-70	25-55	10-50	0-40	15-30	NP - 8         
	58-68		 		0	0						   
Rock outcrop	   0-60 	Unweathered	 		0	0	   					   
104B,104C,104D, 104E:		W- 1					   					   
Flatiron	0-1   	Moderately   decomposed   plant material	OL, PT   	A-4, A-8 	1-5   	0-5	   			   		

Table 21.-Engineering Properties-Continued

Table 21.-Engineering Properties-Continued

Map symbol	Depth	USDA texture	Classif	ication	i	ments			e passi umber		  Liquid	
and soil name		i	Unified	AASHTO	>10	3-10 inches	   4	1 10	1 40	200	limit	ticity  index
	In		Onlined	AASIIIO	Pct	Pct		1		200	Pct	Index
Flatiron	1-2	  Loamy fine   sand, loam,   fine sandy   loam, gravelly   sandy loam,	  SM, ML, GM,   GC-GM	  A-2, A-4   	   1-5   	0-5	  65-95     	  50-92     	  25-85     	  10-70     	20-40	   1-12   
	2-36	gravelly loamy sand Gravelly fine sandy loam, gravelly loamy fine sand,	  SM, ML, GM,   GC-GM	  A-2, A-1, A-4   	0-3	     0-10 	    65-95   	    50-92   	    25-85   	    10-70   	    15-25   	     NP-5   
	36-47	loam  Very gravelly   sandy loam,   gravelly loam,   loamy sand	  GM, GC-GM,   ML, SM	A-1, A-2, A-4	   0-5 	   0-10 	  45-92   	  30-85   	  15-75   	   5-60   	  15-25   	   NP - 5   
	47-60	loamy sand  Silty clay   loam, gravelly   loam, loamy   sand, very   gravelly sandy   loam	 	A-4, A-2, A-1	0-5	0-10   	  45-92     	30-85	  15-80     	5-75       	  15-25     	   NP - 5     
	60-72		SM, ML, GM, GC-GM	A-4, A-2, A-1	0-5   	0-10   	  45-92   	30-85	  15-75   	5-60   	  15-25   	  NP-5   
108D,108E,108F: Hartleton	0-10	  Channery silt	ML, SM	A-4	0	0-20	    55-90	50-80	40-80	30-70	20-40	    NP-7
	10-38	loam  Channery silt   loam, very   channery silt   loam, very   channery loam,   channery silty		A-2, A-4	0-5	0-40	  35-85       	  30-65       	  25-60       	  20-60     	20-30	   NP - 7       
	38-58	clay loam Extremely channery silt loam, very channery loam, very channery silt loam	  GM, SM     	A-1, A-2     	0-5	5-40     	  35-65     	  20-45     	  15-40       	10-35	20-30	   NP - 7     
	58-68	Unweathered   bedrock	     		   0 	   0 	   				   	   

Map symbol	Depth	USDA texture	Classi	fication	İ	ments		rcentag	e passi umber	ng	Liquid	
and soil name			   Unified	AASHTO	>10	3-10	4	1 10	1 40	1 200	limit	ticity  index
	In	·	OHITIEG	_	Pct	Pct					Pct	Index
			j		j	İ	j	İ	İ	İ	İ	İ
131: Lamson	0-16	  Very fine sandy   loam	  ML, SM 	A-4	   0 	   0 	  95-100 	  90-100 	  70-100 	  35-90 	0-20	   NP - 4 
	16-35	Fine sandy   loam, very   fine sandy   loam	SM, ML	A-4   	0   	0   	92-100	75-100   	55-95   	30-65   	0-20	NP - 4   
	35-72	Loamy fine sand, stratified fine sandy loam to loamy fine sand, fine sand, very fine sand, silt loam	SM, ML	A-2, A-4	0         	0         	92-100	75-100           	45-100           	15-90           	0-14               	NP           
132B,132C:			 							 		 
Wiscoy	0-7	Channery silt	CL, CL-ML, GC, SC	A-4	0	0-10	70-92	60-85	50-80	35-70	15-25	5-10
	7-12	Silt loam,   channery loam	CL, CL-ML, GC-GM, SC	A-4	0	0-10	65-92	60-85	50-80	35-70	15-25	5-10
	12-36	Channery silt   loam, channery   loam, silty   clay loam	CL, CL-ML,	A-4   	0   	0-15	70-92	60-85	50-80	35-75   	20-30	5-10   
	36-72	Silt loam,   silty clay   loam, silty   clay, loam	CL, CL-ML, SC-SM	A-6, A-4, A-7	0     	0   	  95-100   	  92-100   	  75-100   	  55-95     	15-45	   5-25   
135C,135D,135E:			 					 		 		 
Hudson	0-7	Silt loam	ML, CL-ML, CL, OL	A-6, A-4, A-7	0	0	75-100	65-100	50-100	35-95	25-48	5-19
	7-16	Silt loam,   silty clay   loam, silty   clay	CH, CL	A-7, A-6	0   	0   	75-100   	65-100	50-100	30-95   	35-65	     
	16-38	Silty clay,  silty clay   loam	CH, CL	A-7, A-6	0   	0	  90-100 	  85-100 	70-100	60-95	35-65	  15-35 
	38-72	Silty clay, silt loam, stratified silty clay to silty clay loam to silt	CH, CL	A-7, A-6	0       	0       	90-100	85-100       	70-100       	60-95	35-65	15-35         

Table 21.-Engineering Properties-Continued

Table	21Engineering	Properties-Continued

Map symbol	Depth	USDA texture	Classi	fication	Fragi	ments		rcentag	e passi umber	ng	Liquid	   Plas-
and soil name					>10	3-10	ļ				limit	
	In		Unified	AASHTO	inches   Pct	inches Pct	4	10	40	200	Pct	index
	111		] 		PCL 	PCL	 			 	PCL	 
140D,140E:			į		į	İ	į	į	ļ	į	į	
Dunkirk	0-4 4-14	Silt loam  Silt loam, very	CL, CL-ML	A-4 A-4	0   0	0	1	1	65-100 65-100	1		5-10 5-10
	4-14	fine sandy   loam, fine   sandy loam	CL, CL-ML   	A-4   	0   		95-100     	92-100     	     	33-90     	20-30	5-10   
	14-48	Silty clay   loam, silt	CL, CL-ML	A-4, A-6	0	0	95-100	92-100	75-100	45-95	20-30	5-15
		loam, very   fine sandy   loam	 		   	   	   	   	   	   		   
	48-72	Silt loam,   silt, very   fine sand,   silty clay   loam	ML, SM       	A-4   	0     	0     	95-100     	92-100       	55-100     	30-95     	0-15	NP - 4     
185C,185D:			 		 		 	 		 		
Onoville	0-8	Silt loam	CL, CL-ML	A-4, A-6	1-5	0-5		1	40-90		1	4-15
	8-22	Silt loam,   loam, silty   clay loam,   channery silt   loam, very	CL, CL-ML,   GC, SC-SM   	A-6, A-4, A-7	0     	0-5     	55-95       	45-92     	35-90     	25-85     	20-45     	4-25     
	22-65	flaggy loam  Channery clay   loam, channery   loam, channery   silty clay   loam, very		A-6, A-4, A-7	   0   	0-10     	  55-95     	  45-92     	  35-90     	  25-85     	20-45	   4-25     
	65-72	flaggy loam Channery clay	SC, GC-GM,	A-6, A-4, A-	   0	0-10	  45-90	25-75	  15-70	  10-65	20-45	4-20
		loam, channery silty clay loam, channery loam, very channery silt loam, very channery clay loam, very flaggy loam	į	2, A-7								
187B,187C:								[				
Shongo	0-6 6-24	Silt loam  Silt loam,   silty clay   loam, channery   loam	CL, CL-ML  CL, CL-ML 	A-4, A-6  A-4, A-6	1-5   0-3 	0-5		1	45-90  40-90 		1	5-15   5-15 

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Map symbol	Depth	USDA texture		Classif	icati	on		i	ments		_	e passi: umber	ng	Liquid	
and soil name	İ		.	Unified	   a:	ASHTO		>10  inches	3-10	   4	1 10	1 40	200	limit	ticity  index
	In				ļ —— <del></del>			Pct	Pct	<del></del>	<del></del> -			Pct	
Shongo	   24-56   	Channery silty   clay loam,   clay loam,   silt loam,   channery loam	  CL,     	CL-ML	  A-6,   7-6   	A-4,	A-	0-3	   0-10   	  50-95     	  45-92     	  40-90     	  30-85     	  20-45     	   5-25   
	56-72	Channery silty clay loam, very channery clay loam, very channery silt loam, channery loam	  GC,       	CL-ML, CL	  A-6,   7-6     	A-4,	<b>A</b> -	0-3	0-10     	  50-95       	  45-92       	40-90       	  30-85       	  20-45       	   5-25     
188B,188C,188D:					 			 	 	 	 		 		 
Cavode	0-7 	Silt loam	ML		A-7,	A-4, A-7-6		0 	0-5	85-95 	75-92 	65-90 	50-85 	35-50	5-20
	7-14 	Silt loam,   channery silty   clay loam,   silty clay		CH, ML	A-7,			0	0-5	85-95   	75-92   	65-90	50-85	30-55	5-30
	14-44   	Silty clay   loam, channery   silty clay,   clay	!	CH, ML	A-7,   	A-6,	A-4	0	0-10	85-95   	75-92	65-90	50-85	30-55	5-30
	44-68   	Channery silty   clay, very   channery silty   clay loam,   channery clay,   silty clay	ML		A-7,   4, 1	A-6, A-2	A-	0	0-20	  45-100     	35-100     	25-100	20-95	30-55	5-30   
	   68-72 	Unweathered   bedrock			     			0	   0 	   			   		
189B,189C:															
Portville	0-7   7-22 	Silty clay loam  Channery silt   loam, silty   clay loam,   loam		CL-ML	A-4,  A-4,   			1-5   0-1   	0-5   0-5   	1	1	60-90  35-90   	1	25-40  20-40   	5-15   5-15   
	22-50	1		CL, CL-ML	A-6,   7-6 	A-4,	A-	0-3	0-10   	70-95     	45-92     	35-90	25-85     	20-45	5-25     

Table 21.-Engineering Properties-Continued

Table 21.-Engineering Properties-Continued

Map symbol	Depth	USDA texture	re				i	ments			e passi: umber	ng		   Plas-	
and soil name			   1	Unified	   A	ASHTO		1	3-10  inches	   4	1 10	1 40	1 200	limit 	ticity  index
	In							Pct	Pct	<del>-</del>	_ <del>-</del> -	<del></del> -		Pct	
Portville	50-72	Channery silty   clay loam,   very gravelly   silty clay   loam, very   channery silt   loam, gravelly   clay loam,	       	CL-ML, CL	   A-6,   7-6         		<b>A</b> -	   0-5       	   0-10         	  45-90       	  30-75         	  25-70         	  20-70         	  20-45         	   5-25         
		channery loam	ļ		į			ļ	į		į	İ	ļ	į	į
195C,195D,195E:		 						 	 	<u> </u>	 		 		 
Mandy	0-2	Channery silt		CL-ML, , ML	A-4			1-5	0-15	70-92	65-85	50-80	35-70	25-35	4-10
	2-24	Channery silt   loam, very   channery silt   loam,   extremely   channery loam	GM,       	GC-GM	A-2,       	A-4		0-5	0-30	40-85     	30-70       	25-70	20-65	25-35	4-10     
	24-33	· -	   	GC-GM	A-2,	A-4		0-10     	0-40	40-85     	30-70	25-65	20-65     	25-35	4-10   
	33-43	Iodiii  Unweathered   bedrock			   			0	0	   	   		   		   
199C,199D:			 		 				 		 				 
Buchanan	0-6 6-33	Silt loam  Channery silt   loam, channery   clay loam,   gravelly loam,   sandy clay   loam	CL,	CL-ML, CL-ML,	A-4,   A-6, 	A-6 A-4,	A-7	1-5   0-5 				30-100  40-100 			4-15 4-25
	33-45				A-6,       	A-4,	A-7	0-5     	0-10     	  45-95     	30-92	25-90       	  10-80     	20-45	4-25     
	45-72		ML SC	CL, CL- , GC-GM,	A-2,   6,       	A-4, A-7	A-	0-5	0-20	45-95       	30-92	25-90         	10-80	20-45	4-20       

4-15

Classification Fragments Percentage passing Map symbol Depth USDA texture sieve number --Liquid Plas->10 and soil name 3-10 limit | ticity Unified AASHTO inches inches 4 10 40 200 index In Pct Pct Pct 289B, 289C, 289D, 289E,289F: Ceres-----Channery silt CL, GM, ML, 0 - 7 A-4, A-2 0 0-5 75-95 | 65-92 | 40-90 25-80 5-15 2-15 loam SM 7-29 Channery silt GC, CL, GM, A-4, A-2, A-6 0-3 0-10 65-92 | 50-85 | 40-80 | 30-75 | 23-40 2-17 SC loam, very channery silty clay loam, clay loam, channery loam 29-44 Extremely GM, SM A-2, A-1 0-5 35-60 15-30 8-30 5-30 25-40 2-13 channery silt loam, extremely channery silty clay loam, extremely channery loam 44-54 Unweathered 0 0 --bedrock 400: Wakeville-----Silt loam CL, CL-ML, ML A-4, A-6 0 0 100 92-100 75-100 45-90 15-35 2-15 92-100 75-100 45-90 15-35 10-43 Silt loam, very CL, CL-ML, ML A-4, A-6 0 0 100 2-15 fine sandy loam 43-52 Silt loam, very CL, ML, SC-0 |50-100|40-100|20-100| 5-90 |15-25 |NP-15 A-4, A-2, A-6 0-5 gravelly loamy SM, SM sand, fine sandy loam, gravelly very fine sandy loam 52-72 Very gravelly SP-SC, CL, A-2, A-4, A-6 0 0 - 5 |50-100|40-100|20-95 | 5-75 |15-25 |NP-15 loamy sand, ML, SC-SM, loam, fine SM

A-4, A-2, A-6

0

0-15 | 60-95 | 45-92 | 35-90 | 25-80 | 20-40

sandy loam,
gravelly very
fine sandy
loam

Channery silt

loam

CL, CL-ML,

GC, SC

496B,496C,496D, 496E,496F:

Gilpin-----

0 - 4

Table 21.-Engineering Properties-Continued

Table 21.-Engineering Properties-Continued

Map symbol	Depth	USDA texture	Classi	fication	Fragi	ments			e passi umber		Liquid	   Plas-
and soil name			Unified	AASHTO	>10	3-10 inches		10	40	1 200	limit	ticity
	In	-	Ollified	AASHIO	Pct	Pct		-	-	200	Pct	Index
Gilpin	4-26	Channery silt   loam, channery silty clay   loam, silty clay   clay loam, loam, clay	CL, CL-ML, GC, SC	A-4, A-2, A-6	0-5	   0-20   	  60-95     	  45-92     	35-90	  25-85     	  20-40     	   4-15     
	26-35	loam Very channery silt loam, very channery silty clay loam, channery loam, extremely channery loam	GC, GC-GM	A-4, A-2, A- 1, A-6	   0-5     	0-30	  35-75         	  20-55         	  15-50         	  10-50       	  20-40     	   4-15       
	35-45	Unweathered bedrock	 		0	0 	 					   
497D,497E,497F:							İ					İ
Rayne	0-4	Channery silt	ML, GM, CL,	A-4	0	0-10	60-95	50-92	40-90	30-80	20-40	2-14
	4-38	Channery silt   loam, channery   silty clay   loam, loam,   channery clay   loam	CL, GC, GM,	A-4, A-2, A-6	0-3	0-15	60-95     	50-92	40-90	30-85	20-40	2-15     
	38-72	1	j	A-4, A-2, A-1	0-5	0-20	45-90	30-75	25-70	20-65	20-35	NP-10       
498E: Rayne	0-4	    Channery silt	    ML, GM, CL,	    A-4	0	     0-10	    60-95	50-92	40-90	30-80	20-40	     2-14
<u>.</u>	4-38	loam  Channery silt   loam, channery   silty clay   loam, loam,   channery clay   loam	SM CL, GC, GM,	A-4, A-2, A-6	0-3	İ			40-90			2-15   2-15 

So.
Su
Zey

Map symbol and soil name	Depth	USDA texture	Classif	ication	Fragi	ments			e passinumber	ng	  Liquid  limit	   Plas-  ticity
and soll name			   Unified	AASHTO	1	inches	4	10	40	200	11111111	index
	In	į			Pct	Pct	i		i	<u> </u>	Pct	İ
Rayne	38-72	Channery silt   loam, channery   silty clay   loam, channery   clay loam, very channery   loam	į	  A-4, A-2, A-1   	0-5	0-20	  45-90         	  30-75       	  25-70       	  20-65       	  20-35       	  NP-10     
800:		]	 		 		 	 		 		 
Holderton	0-6 6-36	Silt loam  Fine sandy   loam, loam,   silt loam,   gravelly fine   sandy loam	CL, CL-ML, ML SM, SC-SM, ML, CL-ML	A-4   A-4, A-2 	0 0	0 0			55-100  50-100 			5-10   2-5 
	36-72	Gravelly loam, very gravelly sandy loam, silt loam, loam	SM, ML, GC- GM, CL-ML	A-4, A-2, A-1	0     	0-5	65-100       	55-100     	30-100     	15-90     	10-20       	2-5       
PG: Pits, gravel					 	 	   	   	 	 		 
Ur: Urban land		   			   	   	   	   	   	   	   	   
W: Water		   			   	   	   	   	   	   	 	   

Table 21.—Engineering Properties—Continued

Table 22.-Physical Properties of the Soils

(Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Wind erodibility index" apply only to the surface layer. Absence of an entry indicates that data were not estimated.)

Map symbol and soil name	Depth	   Sand   	Silt	Clay	   Moist     bulk	Permea- bility	  Available   water	   Linear  extensi-	   Organic   matter	Erosi	on fac	cor
and boll name		i i	i		density	(Ksat)	capacity	bility		Kw	Kf	i 1
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct	<del></del>		¦-
1:											 	
Udifluvents	0-9	70-91	0-29		1.10-1.50		0.03-0.15		0.0-3.0	.10	.17	-
	9-70	0-100	0-73	0-40	1.20-1.70  	0.06-20	0.03-0.16	0.0-2.9	0.0-1.0			
Fluvaquents	0-12	44-85	0-49	0-20	1.10-1.50	0.2-20	0.06-0.18	0.0-2.9	0.0-5.0	.10	.17	i -
-	12-72	0-100	0-80	0-40	1.20-1.60	0.06-20	0.03-0.16	0.0-2.9	0.0-1.0	.28	.32	İ
2:			ļ		 				 		 	
Hamlin	0-10	0-50	50-80		1.15-1.40		0.18-0.21		2.0-6.0	.43	.43	5
	10-17	0-85	0-80		1.15-1.45		0.17-0.19		0.0-1.0	.49	.49	
	17-36	0-85	0-80		1.15-1.45		0.17-0.19	1	0.0-1.0	.49	.49	
	36-72	0-85	0-80	0-17	1.25-1.55	0.6-2	0.17-0.19	0.0-2.9	0.0-1.0	.49	.49	
3:			İ									
Tioga	0-8	15-50	50-80		1.15-1.40		0.15-0.21		2.0-6.0	.37	.37	5
	8-34	15-85	0-80		1.15-1.45	0.6-6	0.07-0.20	1	0.0-1.0	.28	.32	!
	34-72	15-91   	0-80	0-17	1.25-1.55  	0.6-20	0.02-0.20	0.0-2.9	0.0-1.0	.28	32	
4: Teel	0.0	0.50	F0 00	0.15	  1.15-1.40	0.6.0	0 10 0 01			42	42	_
Teel	0-8 8-34	0-50	50-80 0-80			0.6-2 0.6-2	0.18-0.21	1	2.0-6.0	.43	.43	5
	8-34 34-72	0-85     0-85	0-80		1.15-1.45   1.25-1.55	0.6-2	0.17-0.19	1	0.0-1.0	.49	.49   .49	-
	34-72	0-65	0-80	0-17	1.25-1.55	0.6-20	0.12-0.16	0.0-2.9	0.0-1.0	•49	•49 	
5:												
Wayland	0 - 9	0-32	50-80		1.05-1.40		0.17-0.22		3.0-6.0	.43	.43	5
	9-25	0-32	50-80		1.10-1.60		0.16-0.20		1.0-3.0	.43	.43	
	25-72	0-82	0-80	15-35	1.25-1.55	0.06-0.2	0.08-0.19	0.0-2.9	1.0-2.0	.43	.43	
6A:		<u> </u>	į									
Wyalusing	0-6	15-50	50-80		1.15-1.40		0.14-0.20	1	2.0-6.0	.37	.37	3
	6-27	15-85	0-80		1.40-1.65	0.6-2	0.10-0.16		1.0-3.0	.28	.32	!
	27-72	32-91	0-50	0-17	1.25-1.55  	6-20	0.02-0.10	0.0-2.9	1.0-2.0	.17	.24	
7A:												į _
Philo	0-8	15-50	50-80		1.20-1.40		0.14-0.20	1	2.0-4.0	.37	.37	5
	8-34	15-85	0-80		1.20-1.40		0.10-0.20		0.5-1.0	.32	.32	!
	34-46 46-72	15-85     15-85	0-80 0-80		1.20-1.50   1.20-1.50	0.6-6 0.6-6	0.05-0.10	1	0.5-1.0	.24	.28	
0.		į į					İ		į	į	į	į
8: Middlebury	0-8	   15-50	50-80	0 17	  1.15-1.40	0.6-2	0.14-0.21		3.0-7.0	.37	   .37	
middiebury	0-8 8-30	15-50     25-85	0-80		1.15-1.40   1.15-1.45	0.6-2	0.14-0.21	1	0.5-1.0	.37	.37	5
	8-30 30-72	25-85     32-100	0-80		1.15-1.45   1.25-1.55	2-20	0.10-0.20		0.5-1.0	.28	.28	
	30-12	32-100	0-50	0-1/	11.72-1.22	2-20	10.01-0.10	0.0-2.9	1 0.0-1.0	ļ •∠∪	.24	!

And soll name	Map symbol	Depth	Sand	Silt	Clay	Moist	   Permea-	  Available	Linear	   Organic	Erosio	on fac	tors
9: Pawling	and soil name	- 	 		_	1				matter	Kw	Kf	   T
Pawling		In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct		i	ļ —
9-28   15-85   0-80   0-17   1.15-1.45   0.6-2   0.11-0.17   0.0-2.9   1.0-3.0   .49   .49   28-72   70-100   0-29   0-15   1.25-1.55   2-20   0.01-0.11   0.0-2.9   0.0-2.0   .17   .24    10:  Atkins	9:	 				 		 				 	
10:  Atkins	Pawling							1		1	1	1	3
10: Atkins								1			1		
Atkins													
11B,11C,11D,11E,11F:		   0-4	   15-32	50-80	0-27	  1 20-1 40	0.6-2	  0 14-0 22	   0 0-2 9	2 0-4 0	32	   32	   5
11B,11C,11D,11E,11F;   11c,11D,11E,11E,11F;   11c,11D,11E,11E,11F;   11c,11D,11E,11E,11F;   11c,11D,11E,11E,11E,11E,11E,11E,11E,11E,11E	ACKING		1 1			1			•	1	1		]
Ischua			15-82	0-73				1		1			ļ
Ischua	11B, 11C, 11D, 11E, 11F:	 	 			 	l I	 		 		 	 
23-28   15-52   28-80   18-35   1.50-1.70   0.06-0.6   0.09-0.18   0.0-2.9   0.0-1.0   .28   .32		0-6	15-32	50-80	0-27	1.10-1.40	0.6-2	0.12-0.19	0.0-2.9	3.0-8.0	.24	.32	3
12B,12C,12D,12E:   Franklinville			1				1	1		1	1		İ
12B,12C,12D,12E: Franklinville			1							1	1		
Franklinville		28-38				 	0.0000-0.06		 				
3-32   15-85   0-80   0-17   1.20-1.50   0.6-2   0.08-0.16   0.0-2.9   0.0-1.0   0.24   0.28   0.28   0.27   0.07-0.14   0.0-2.9   0.0-1.0   0.24   0.28   0.28   0.27   0.07-0.14   0.0-2.9   0.0-1.0   0.24   0.28   0.28   0.27   0.27   0.27   0.07-0.14   0.0-2.9   0.0-1.0   0.24   0.28   0.28   0.28   0.27	12B,12C,12D,12E:	 				 	i					! 	
14B,14C:   Hornellsville		0-3	15-50	50-80	0-17	1.10-1.40	0.6-2	0.08-0.16	0.0-2.9	2.0-6.0	.24	.32	4
14B,14C: Hornellsville			1					1	1	1	1		İ
14B,14C: Hornellsville 0-5  0-50  50-80  18-27  1.10-1.40  0.6-2  0.16-0.21  0.0-2.9  3.0-7.0  .37  .43  3  3  34-48    0.0000-0.06    0.0000-0.06			1				1	1		1	1		
Hornellsville		42-72 	15-85	0-80	0-17	1.40-1.70	0.2-2	0.07-0.14	0.0-2.9	0.0-1.0	.24	.32	
5-34							İ					 	
15B,15C,15D: Willdin	Hornellsville		1 1				1	1		1			3
15B,15C,15D: Willdin			1 1					1		1			ļ
Willdin		34-48 				 	0.0000-0.06		 				
16A, 16B, 16C: Almond	15B,15C,15D:		i i				İ	İ					l
24-60   15-52   28-80   0-17   1.65-2.00   0.0015-0.2   0.00-0.00   0.0-2.9   0.0-1.0   .24   .28   60-72   15-52   28-80   0-17   1.60-1.95   0.0015-0.2   0.00-0.00   0.0-2.9   0.0-1.0   .24   .32   .24   .32   .24   .32   .24   .32   .24   .32   .24   .32   .24   .32   .24   .32   .24   .32   .24   .32   .24   .32   .24   .32   .24   .32   .24   .28   .28	Willdin		1					1		1	1		2
16A,16B,16C: Almond			1				1			1	1		
16A,16B,16C: Almond		1	1			1	I .	1	1	1	1 '		ļ
Almond		60-72 	15-52   	28-80	0-17	1.60-1.95 	0.0015-0.2	0.00-0.00	0.0-2.9 	0.0-1.0	.24	.32 	
T-37		İ	i i	İ		İ	İ	İ			İ	İ	
17B,17C,17D,17E: Salamanca	Almond		1					1	1	1			4
17B,17C,17D,17E: Salamanca			1				1			1			ļ
Salamanca		37-72 	15-32	45-80	18-35	1.40-1.65	0.0015-0.2	0.08-0.14	0.0-2.9 	0.0-1.0	.24	.32 	
8-16   15-52   28-80   18-35   1.20-1.50   0.6-2   0.10-0.18   0.0-2.9   0.0-1.0   .28   .32   16-37   15-52   28-80   18-35   1.20-1.50   0.0015-0.6   0.11-0.18   0.0-2.9   0.0-1.0   .28   .32   37-72   15-52   28-80   18-35   1.45-1.65   0.0015-0.6   0.09-0.18   0.0-2.9   0.0-1.0   .28   .32   .32   .32   .33   .34   .35	17B,17C,17D,17E:						İ	 				! 	
18A: Pope	Salamanca		1					1					4
18A: Pope			1				I .			1	1		
18A: Pope 0-10   44-85   0-49   0-17   1.20-1.40   0.6-6   0.14-0.23   0.0-2.9   1.0-4.0   .37   .37   5   10-38   32-85   0-50   0-17   1.30-1.60   0.6-6   0.10-0.18   0.0-2.9   0.5-1.0   .28   .28		1				1	I .	1	1	1	1		
Pope 0-10   44-85   0-49   0-17   1.20-1.40   0.6-6   0.14-0.23   0.0-2.9   1.0-4.0   .37   .37   5   10-38   32-85   0-50   0-17   1.30-1.60   0.6-6   0.10-0.18   0.0-2.9   0.5-1.0   .28   .28		37-72 	15-52   	28-80	18-35	1.45-1.65 	0.0015-0.6	0.09-0.18 	0.0-2.9 	0.0-1.0	.28	.32 	
10-38   32-85   0-50   0-17   1.30-1.60   0.6-6   0.10-0.18   0.0-2.9   0.5-1.0   .28   .28							İ						
	Pope	0-10	44-85	0-49		1	I .	1	1	1	.37	.37	5
38-72   32-91   0-50  0-17 1.30-1.60  0.6-6   0.10-0.18  0.0-2.9   0.0-1.0   .28   .20			1 1							1	1		
		38-72	32-91	0-50	0-17	1.30-1.60	0.6-6	0.10-0.18	0.0-2.9	0.0-1.0	.28	.20	

Table 22.-Physical Properties of the Soils-Continued

Table 22.-Physical Properties of the Soils-Continued

Map symbol and soil name	Depth	Sand Si	Silt	Clay	Moist     bulk	Permea- bility	  Available   water	Linear extensi-	Organic matter	Erosion facto:		
and Boll name	i i				density	(Ksat)	capacity	bility	i	Kw	Kf	1
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct	\ <u></u>		-
9A,19B:												
Olean	0-9	0-14	50-80	0-27	  1.20-1.40	0.6-2	0.18-0.20	0 0-2 9	2.0-7.0	.43	.43	
orean	9-23	0-14	0-80		1.20-1.40	0.6-2	0.18-0.21		0.0-1.0	.43	.43	ł
i	23-36	0-14	50-80		1.20-1.60	0.2-2	0.15-0.20		0.0-1.0	.43	.43	ł
	36-72	70-100	0-29		1.20-1.40	6-101	0.01-0.05		0.0-1.0	.17	.20	
0A,20B,20C,20D:					 				 			
Unadilla	0-9	0-50	50-80	0-17	1.20-1.50	0.6-2	0.18-0.21	0.0-2.9	2.0-7.0	.49	.49	l
	9-55	0-85	0-80		1.20-1.50	0.6-2	0.17-0.20		0.0-1.0	.64	.64	i
	55-72	44-100	0-49		1.45-1.65	2-20	0.01-0.10		0.0-0.5	.17	.20	
2A,22B:		 			 				 		 	
Allard	0-9	0-50	50-80	0-17	1.20-1.50	0.6-2	0.16-0.21	0.0-2.9	2.0-7.0	.43	.43	İ
İ	9-34	0-85	0-80	0-17	1.20-1.50	0.6-2	0.15-0.20	0.0-2.9	0.0-1.0	.64	.64	İ
	34-72	70-100	0-29	0-15	1.45-1.65	6-101	0.01-0.03	0.0-2.9	0.0-1.0	.17	.20	Ì
5A,25B,25C,25D,25E, 5F:					 				   		   	
Chenango	0-9	0-50	50-80	0-27	1.20-1.50	0.6-6	0.08-0.16	0.0-2.9	2.0-6.0	.24	.32	i
	9-30	0-85	0-80		1.25-1.55	0.6-6	0.07-0.15		0.0-1.0	.17	.24	i
	30-72	44-100	0-49		1.45-1.65	6-20	0.01-0.05		0.0-1.0	.17	.24	ļ
6A,26B:					 				 		 	
Chenango, fan	0 - 9	0-50	50-80	0-27	1.20-1.50	0.6-6	0.08-0.14	0.0-2.9	2.0-6.0	.24	.32	İ
į	9-45	0-85	0-80	0-27	1.25-1.55	0.6-6	0.05-0.13	0.0-2.9	0.0-1.0	.17	.24	İ
	45-72	44-100	0-49	0-20	1.45-1.65	6-20	0.01-0.05	0.0-2.9	0.0-1.0	.17	.28	į
7A,27B:					 				<u> </u>			l
Castile	0-10	0-50	50-80	0-27	1.10-1.40	0.6-6	0.09-0.16	0.0-2.9	2.0-6.0	.24	.32	İ
İ	10-30	0-85	0-80	0-27	1.25-1.55	2-6	0.05-0.13	0.0-2.9	0.0-1.0	.17	.24	Ĺ
	30-72	24-100	0-50	0-27	1.45-1.65	6-20	0.01-0.02	0.0-2.9	0.0-1.0	.17	.24	
8A:		 			 						 	
Scio	0-9	0-50	50-80		1.20-1.50	0.6-2	0.18-0.21		2.0-8.0	.49	.49	
	9-50	0-85	0-80		1.20-1.50	0.6-2	0.17-0.20		0.0-1.0	.24	.24	
	50-72	0-100	0-80	0-17	1.45-1.65	2-20	0.02-0.19	0.0-2.9	0.0-1.0	.24	.28	
9A,29B,29C,29D,29E:												ļ
Chenango	0 - 9	44-85	0-49		1.20-1.50	0.6-6	0.08-0.16		2.0-6.0	.15	.20	
	9-30	0-85	0-80		1.25-1.55	0.6-6	0.07-0.15		0.0-1.0	.17	.24	ļ
	30-72	44-100	0-49	0-20	1.45-1.65  	6-20	0.01-0.05	0.0-2.9	0.0-1.0	.17	.24	ļ
1B,31C:											į	
Collamer	0-6	0-50	50-80		1.20-1.50	0.6-2	0.14-0.21		2.0-5.0	.49	.49	ļ
	6-24	0-82	0-80		1.20-1.50	0.6-2	0.14-0.20		0.0-1.0	.49	.49	ļ
	24-45	0-50	50-80		1.20-1.50		0.16-0.20		0.0-1.0	.49	.49	ļ
	45-72	0-100	0 -	0-40	1.45-1.65	0.06-0.6	0.12-0.20	0.0-2.9	0.0-1.0	.64	.64	ļ
		1	100		1 1		1		1	1	1	

Map symbol	Depth	Sand	   Silt	Clay	Moist	   Permea-	  Available	Lincar	Organic	Erosi	on fact	tors
and soil name	Depth   	Sand   	5110	Clay	Moist   bulk   density	bility   (Ksat)	water   capacity	extensi-	matter	Kw	   Kf	   T
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct	· - <del></del> -		<del></del> -
32A,32B:	 										l I	
Churchville	0-14	0-50	50-80	0-27	1.00-1.25	0.6-2	0.16-0.21	0.0-2.9	2.0-6.0	.49	.49	3
	14-37	0-45	15-65	35-60	1.20-1.40	0.0015-0.2	0.13-0.17	3.0-5.9	0.0-1.0	.28	.28	İ
	37-72	0-85	0-80	0-40	1.50-1.80	0.0015-0.2	0.07-0.17	0.0-2.9	0.0-1.0	.28	.32	
33A:	 		<u> </u>		 	 					 	
Wallington	0-8	0-50	50-80		1.20-1.50		0.19-0.21	1	2.0-6.0	.49	.49	2
	8-14	0-85	0-80		1.20-1.50	1	0.18-0.20	1	0.0-1.0	.64	.64	ļ
	14-38	0-85			1	0.06-0.2	0.00-0.00	1	0.0-1.0	.64	.64	ļ
	38-72 	0-91	0-80	0-17 	1.45-1.65	0.06-0.2	0.00-0.00	0.0-2.9	0.0-1.0	.64	.64	l I
34:	İ		İ			İ				İ	İ	İ
Getzville	1	0-32	50-80		1.20-1.50	1	0.15-0.22	1	4.0-8.0	.49	.49	3
	9-24	0-32	50-80		1.20-1.50		0.15-0.20	1	0.0-1.0	.43	.43	ļ
	24-72	70-100	0-29	0-15	1.45-1.65	2-6	0.02-0.08	0.0-2.9	0.0-1.0	.17	.20	l I
35A,35B,35C:											İ	
Rhinebeck	0-9	0-50	50-80		1.00-1.25		0.16-0.21	1	3.0-7.0	.49	.49	3
	9-13	0-85	0-80			0.06-0.2	0.12-0.14		1.0-3.0	.28	.28	ļ
	13-38	0-45	0-65		1.20-1.40		0.12-0.14		1.0-3.0	.28	.28	ļ
	38-72 	0-100	0-  100	0-90 	1.45-1.65	0.06-0.2	0.12-0.15	0.0-2.9	0.0-1.0	.28	.28	 
	į	į	į		į	į	į	į	į	į	į	į
36: Canadice	   0-8	0-20	40 65		  1.35-1.55	0.2-2	  0.17-0.21		3.0-8.0	.49	   .49	   3
Canadice	0-8   8-42	0-45	0-65			0.2-2			0.0-1.0	.28	.49	<b>3</b>
	42-72	0-45	0-65		1	0.0015-0.06	1	1	0.0-1.0	.28	.28	l
	į	İ	į		į	į	İ	İ		İ	į	į
37A,37B:								!				
Tonawanda	1	0-50	50-80		1.20-1.50 1.20-1.50		0.18-0.24		3.0-8.0	.49	.49	4
	9-38 	0-91	0-  100	0-17	1.20-1.50 	0.2-2	0.18-0.22	0.0-2.9	0.0-1.0	.64	.64	
	38-72	0-100		0-17	1.20-1.60	0.06-0.6	0.17-0.21	0.0-2.9	0.0-1.0	.64	.64	İ
			100								ļ	
38A,38B:	 		 		 	 		<u> </u>			l I	
Niagara	0-12	0-50	50-80	0-27	1.20-1.50	0.6-2	0.17-0.22	0.0-2.9	2.0-6.0	.49	.49	4
	12-36	0-82	0-80		1.20-1.50	1	0.16-0.20	1	0.0-1.0	.49	.49	
	36-72	0-82	0-80	0-40	1.20-1.50	0.06-0.6	0.12-0.20	0.0-2.9	0.0-1.0	.64	.64	
39A:	 		 		 		 	 			ľ	
Halsey	0-6	15-50	50-80	0-17	1.10-1.30	0.6-2	0.16-0.24	0.0-2.9	3.0-5.0	.28	.32	3
	6-34	15-85	0-80		1.20-1.40	1	0.12-0.18	1	0.0-0.5	.24	.28	
	34-72	70-100	0-29	0-15	1.40-1.60	6-20	0.02-0.07	0.0-2.9	0.0-0.0	.10	.17	
40A,40B,40C:	 		 		 		 	[ 			 	
Williamson	0-8	0-50	50-80	0-17	1.10-1.40	0.6-2	0.18-0.20	0.0-2.9	3.0-6.0	.49	.49	3
	8-20	0-85	0-80		1.10-1.40	1	0.18-0.20	1	0.0-1.0	.64	.64	
	20-38	0-85	0-80				0.00-0.00		0.0-1.0	.64	.64	ļ
	38-72	0-85	0-80	0-17	1.30-1.60	0.0015-0.2	0.00-0.00	0.0-2.9	0.0-1.0	.64	.64	

Table 22.-Physical Properties of the Soils-Continued

Table 22.—Physical Properties of the Soils—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk	Permea-   bility	  Available   water	extensi-	Organic matter		on fac	
					density	(Ksat)	capacity	bility		Kw	Kf	T
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct			
41A,41B:			i							İ		
Barcelona	0 - 9	0-50	50-80		1.20-1.50		0.17-0.20		2.0-6.0	.49	.49	4
	9-36	0-85	0-80		1.20-1.50		0.16-0.20	1	0.0-1.0	.43	.43	ļ
	36-46	0-50	50-80		1.45-1.65		0.08-0.14	1	0.0-1.0	.28	.37	!
	46-56				 	0.0000-0.06	 	 				
42A,42B:			j							İ		
Elnora	0 - 7	44-85	0-49		1.20-1.50	1	0.08-0.16		2.0-6.0	.28	.28	4
	7-27	70-100	1		1.20-1.50	6-20	0.07-0.09		0.0-1.0	.17	.17	
	27-72	70-100	0-29	0-15	1.45-1.65	6-20	0.04-0.06	0.0-2.9	0.0-1.0	.17	.17	
43:			i			 	 	 				
Canandaigua, silt loam	0 - 9	0-32	50-80		1.20-1.40		0.18-0.24	0.0-2.9	4.0-8.0	.49	.49	4
	9-32	0-82	0-80		1.20-1.40		0.16-0.20		0.0-1.0	.49	.49	
	32-72	0-82	0-80	18-35	1.15-1.40	0.2-0.6	0.16-0.20	0.0-2.9	0.0-1.0	.64	.64	
44:			i			 	 	 	 			
Canandaigua, mucky silt loam	0-10	0-32	50-80	0-27	1.00-1.25 	0.6-2	0.18-0.30 	0.0-2.9	10-20	.43	.43	4
	10-32	0-82	0-80		1.20-1.40	1	0.16-0.20		0.0-1.0	.49	.49	
	32-72	0-82	0-80	18-35	1.15-1.40	0.2-0.6	0.16-0.20	0.0-2.9	0.0-1.0	.64	.64	
45:			i			 	 	 				
Canandaigua, acid	0 - 8	0-32	50-80	0-27	1.20-1.40	0.6-2	0.17-0.22	0.0-2.9	4.0-8.0	.49	.49	4
Subscracum	8-32	0-82	0-80	18-35	1.20-1.40	0.2-0.6	0.16-0.20	0.0-2.9	0.0-1.0	.49	.49	1
	32-72	0-82	0-80		1.15-1.40	0.2-0.6	0.16-0.20		0.0-1.0	.64	.64	
46:			ļ									
Swormville	0-8	0-50	50-80	0-27	  1.20-1.50	0.2-0.6	  0.17-0.22	0.0-2.9	3.0-6.0	.49	.49	3
	8-31	0-52	20-80	18-35	1.55-1.70	0.06-0.6	0.15-0.17	0.0-2.9	0.0-1.0	.43	.43	i
	31-35	44-91	0-49	0-20	1.60-1.75	2-6	0.03-0.08	0.0-2.9	0.0-1.0	.17	.20	İ
	35-72	70-100	0-29	0-15	1.60-1.75	2-6	0.02-0.08	0.0-2.9	0.0-1.0	.17	.20	į
47A:		 	ļ			 	 	 	 			
Minoa	0 - 9	44-85	0-49	0-17	1.20-1.50	0.6-2	0.13-0.21	0.0-2.9	3.0-6.0	.37	.37	4
	9-32	15-91	0-80	0-17	1.20-1.50	0.6-2	0.13-0.20	0.0-2.9	0.0-1.0	.32	.32	i
İ	32-36	15-91	0-80	0-17	1.20-1.50	0.6-2	0.13-0.20	0.0-2.9	0.0-1.0	.24	.24	İ
	36-72	15-100	0-80	0-17	1.20-1.50	0.6-6	0.07-0.20	0.0-2.9	0.0-1.0	.24	.24	į
48A,48B,48C:		 	l I			 	 	 	 			
Colonie	0-9	44-85	0-49	0-20	1.20-1.50	2-6	0.08-0.16	0.0-2.9	1.0-2.0	.28	.28	5
		1	1		ı		1		1	1		1 1
j	9-47	70-100	0-29	0-15	1.20-1.50	2-20	0.06-0.08	0.0-2.9	0.0-1.0	.17	.17	

Map symbol	Depth	Sand	   Silt	Clay	Moist	Permea-	Available	1	Organic	Erosi	on fac	tors
and soil name		l İ	 		bulk density	bility   (Ksat)	water capacity	extensi-   bility	matter	Kw	Kf	   T
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct			
49A:		 				 		 				
Red Hook	0-9	15-50	50-80		1.10-1.40		0.14-0.19	1	4.0-8.0	.28	.32	4
	9-32	15-85	0-80		1.25-1.55	1	0.04-0.17	1	0.0-1.0	.24	.28	
	32-72	15-85 	0-80	0-17	1.45-1.65	0.6-6 	0.04-0.11	0.0-2.9	0.0-1.0	17	.24	
50A,50B,50C:		į	į į		<u> </u>							
Canaseraga	0-5	0-50	50-80		1.10-1.40	1	0.17-0.21	1	2.0-4.0	.49	.49	3
	5-23	0-85	0-80		1.20-1.50	1	0.16-0.20	1	0.0-1.0	.64	.64	
	23-28	0-52	28-80		1	0.0015-0.2	0.00-0.00	1	0.0-1.0	.28	.32	
	28-72 	0-52 	28-80  	0-17	1.65-1.95 	0.0015-0.2	0.00-0.00	0.0-2.9	0.0-1.0	.28	.32	
51B,51C,51D,51E,51F:		į	İ				į					İ
Chadakoin	0-9	15-50	50-80		1.10-1.40		0.08-0.16		2.0-6.0	.24	.32	4
	9-33	15-85	0-80		1.20-1.50	1	0.08-0.16	1	0.0-1.0	.24	.28	ļ
	33-54	15-85	0-80		1.40-1.60	1	0.07-0.14	1	0.0-1.0	.24	.28	ļ
	54-72 	15-85	0-80	0-17	1.40-1.70	0.2-2	0.07-0.14	0.0-2.9	0.0-1.0	.24	.32	
52B,52C,52D,52E,52F:		į	i i				İ				İ	
Valois	0-6	15-50	50-80		1.10-1.40		0.08-0.16		2.0-6.0	.24	.32	4
	6-27	15-85	0-80		1.20-1.50	1	0.07-0.14		0.0-1.0	.24	.28	
	27-48	15-85	0-80		1.20-1.50	1	0.07-0.14		0.0-1.0	.24	.28	ļ
	48-72	15-85	0-80	0-17	1.40-1.60	0.6-6	0.03-0.09	0.0-2.9	0.0-1.0	.24	.32	
53C:						 	İ					i
Valois	0-6	15-50	50-80	0-17	1.10-1.40	0.6-2	0.08-0.16	0.0-2.9	2.0-6.0	.24	.32	4
	6-27	15-85	0-80	0-17	1.20-1.50	0.6-2	0.07-0.14	0.0-2.9	0.0-1.0	.24	.28	
	27-48	15-85	0-80		1.20-1.50	1	0.07-0.14		0.0-1.0	.24	.28	
	48-72	15-85	0-80	0-17	1.40-1.60	0.6-6	0.03-0.09	0.0-2.9	0.0-1.0	.24	.32	
Volusia	0-7	15-32	   50-80	0-27	1.10-1.40	0.6-2	0.11-0.17	0.0-2.9	2.0-7.0	.24	.32	2
	7-16	15-52	28-80	18-27	1.30-1.60	0.6-2	0.09-0.16	0.0-2.9	0.0-1.0	.24	.28	ĺ
	16-45	15-52	28-80		1	0.0015-0.2	0.00-0.00	1	0.0-1.0	.24	.28	
	45-72	15-52	28-80	18-27	1.65-1.95	0.0015-0.2	0.00-0.00	0.0-2.9	0.0-1.0	.24	.32	
Mardin	0-6	15-50	   50-80	0-17	  1.10-1.40	   0.6-2	0.11-0.17	0.0-2.9	3.0-7.0	.24	.32	2
	6-17	15-52	28-80	0-17	1.20-1.50	0.6-2	0.09-0.16	0.0-2.9	0.0-1.0	.24	.28	İ
	17-41	15-52	28-80	0-17	1.70-2.00	0.0015-0.2	0.00-0.00	0.0-2.9	0.0-1.0	.24	.32	İ
	41-72	15-52	28-80	0-17	1.65-1.95	0.0015-0.2	0.00-0.00	0.0-2.9	0.0-1.0	.24	.32	
55A,55B,55C:		[ [	 		 	 		 				
Darien	0-7	15-32	50-80	0-27	1.10-1.40	0.6-2	0.15-0.20	0.0-2.9	3.0-8.0	.28	.32	3
	7-14	15-52	28-80	18-35	1.50-1.75	0.6-2	0.09-0.16	3.0-5.9	0.0-1.0	.24	.28	İ
	14-38	15-45	20-80	18-35	1.50-1.75	0.2-0.6	0.09-0.16	0.0-2.9	0.0-1.0	.24	.28	ĺ
	38-72	15-52	20-80	0-40	1.50-1.85	0.06-0.2	0.05-0.14	0.0-2.9	0.0-1.0	.24	.28	1

Table 22.-Physical Properties of the Soils-Continued

Table 22.-Physical Properties of the Soils-Continued

Map symbol and soil name	Depth	   Sand	Silt	Clay	   Moist   bulk	Permea-	Available   water	Linear extensi-	Organic matter		on fac	
and Boll name		i	1 1		density	(Ksat)	capacity	bility	i	Kw	Kf	i
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct			- -
6B,56C,56D:					 							
Chautauqua	0-9	   15-50	50-80	0 17	  1.10-1.40	0.6-2	0.13-0.20	0029	2.0-6.0	.28	   .32	
cnaucauqua	9-36	15-50	28-80		1.20-1.50	1	0.13-0.20		0.0-1.0	.24	.28	-
	36-72	15-52	28-80		1.40-1.70	1	0.08-0.14		0.0-1.0	.24	.28	
73 FFD FFG		į	į į			İ			į	į	į	İ
7A,57B,57C: Busti	0-8	   15-50	50-80	0 17	  1.10-1.40	0.2-2	0.13-0.20	0 0 0 0	2.0-6.0	.28	   .32	-
Busti	0-8 8-13	15-50	28-80		1.10-1.40		0.13-0.20		0.0-1.0	.32	32	-
	13-39	15-52	28-80		1.20-1.40	1	0.13-0.20		0.0-1.0	.34	.32	-
	39-72	15-52	28-80		1.40-1.50	1	0.08-0.15		0.0-1.0	.24	.28	-
8B,58C:	39-72	15-52	28-80	0-17	1.40-1.70	0.06-0.6	0.08-0.14	0.0-2.9	0.0-1.0	.24	.28	-
8B,58C: Rushford	0-4	   15-50	50-80	0 17	  1.10-1.40	0.6-2	0.11-0.17	0.0-2.9	3.0-8.0	.24	   .32	-
 	4-21	15-50   15-85	0-80		1.10-1.40	1	0.11-0.17		0.0-2.0	.24	.32	1
	21-28	15-85	28-80		I .	0.6-2	0.09-0.16		0.0-2.0	.24	.28	I
	28-36	15-52	50-		1	0.0015-0.2	0.00-0.00		0.0-1.0	.49	1 .49	
	28-36	15-50 	100	0-17	1.70-1.85 	0.0015-0.2	0.00-0.00	0.0-2.9	0.0-1.0	.49	•49 	
	36-72	0-50	40-	0-40	1.40-1.70	0.2-0.6	0.00-0.00	0.0-2.9	0.0-1.0	.49	.49	İ
		ļ	100			ļ	ļ		ļ	ļ	ĺ	į
B,59C,59D:		 			 	 			 		 	i
orkshire	0-8	15-32	50-80	0-27	1.10-1.40	0.6-2	0.15-0.18	0.0-2.9	3.0-8.0	.28	.32	i
	8-19	15-52	28-80		1.20-1.60	1	0.12-0.18		0.0-1.0	.32	.37	i
	19-56	15-52	28-80		1.65-1.85		0.00-0.00		0.0-1.0	.24	.28	i
	56-72	15-52	28-80		1.65-1.85		0.00-0.00		0.0-1.0	.24	.32	i
OA,60B,60C,60D:		 				İ					l I	
Napoli	0-9	15-32	50-80	0-27	1.10-1.40	0.2-2	0.18-0.22	0.0-2.9	3.0-8.0	.28	.32	ł
Napoii	9-23	15-32	20-80		1.20-1.60	1	0.12-0.18		0.0-1.0	.32	37	ł
	23-46	15-45	28-80		1.65-1.85	1	0.00-0.00		0.0-1.0	.24	.28	ł
	46-72	15-52	28-80		1.65-1.85	1	0.00-0.00		0.0-1.0	.24	.32	i
15 617 615 615		į	į į			į			į	į	į	į
1B,61C,61D,61E,61F:	0.6	15 20		0 07		0.60	0 10 0 10			00		-
Schuyler	0-6	15-32	50-80		1.10-1.40		0.12-0.19		3.0-8.0	.28	.32	
	6-35	15-52	28-80		1.20-1.50	1	0.11-0.18		0.0-1.0	.37	.43	-
	35-72	15-52	28-80	18-35	1.70-1.95	0.06-0.6	0.09-0.18	0.0-2.9	0.0-1.0	.28	.32	
2B,62C,62D:		! 			 						! 	i
Mardin	0 - 6	15-50	50-80	0-17	1.10-1.40	0.6-2	0.11-0.17	0.0-2.9	3.0-7.0	.24	.32	Ì
	6-17	15-52	28-80	0-17	1.20-1.50	0.6-2	0.09-0.16	0.0-2.9	0.0-1.0	.24	.28	Ì
	17-41	15-52	28-80	0-17	1.70-2.00	0.0015-0.2	0.00-0.00	0.0-2.9	0.0-1.0	.24	.32	İ
	41-72	15-52	28-80	0-17	1.65-1.95	0.0015-0.2	0.00-0.00	0.0-2.9	0.0-1.0	.24	.32	į
BB,63C,63D:		 			 	 			 		 	
Langford	0-7	15-32	50-80	0-27	1.10-1.40	0.6-2	0.10-0.17	0.0-2.9	3.0-9.0	.24	.32	i
<b>3</b>	7-25	15-52	28-80		1.20-1.50		0.08-0.14		0.0-1.0	.28	.32	l
i	25-44	15-52	28-80			0.0015-0.2	0.00-0.00		0.0-1.0	.28	.37	l
	44-72	15-52	28-80		1	0.0015-0.2	0.00-0.00		0.0-1.0	.28	.37	-

Map symbol and soil name	Depth Sand		Silt	Clay	Moist     bulk	Permea-	Available	1	Organic	Erosion f		actor	
and soil name		 	 		bulk   density	bility   (Ksat)	water  capacity	extensi-   bility	matter	Kw	Kf	;	
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct			-	
54C:		 	 			 							
Mardin	0-6	15-50	50-80	0-17	1.10-1.40	0.6-2	0.11-0.17	0.0-2.9	3.0-7.0	.24	.32	:	
	6-17	15-52	28-80		1.20-1.50		0.09-0.16	1	0.0-1.0	.24	.28		
	17-41	15-52	28-80			0.0015-0.2	0.00-0.00	1	0.0-1.0	.24	.32		
	41-72	15-52	28-80	0-17	1.65-1.95	0.0015-0.2	0.00-0.00	0.0-2.9	0.0-1.0	.24	.32		
56B:		 				 	<u> </u>	<u> </u> 					
Volusia	0 - 7	15-32	50-80	0-27	1.10-1.40	0.6-2	0.11-0.17	0.0-2.9	2.0-7.0	.24	.32	:	
į	7-16	15-52	28-80		1.30-1.60		0.09-0.16	0.0-2.9	0.0-1.0	.24	.28	İ	
į	16-45	15-52	28-80	18-35	1.70-2.00	0.0015-0.2	0.00-0.00	0.0-2.9	0.0-1.0	.24	.28	İ	
	45-72	15-52	28-80	18-27	1.65-1.95	0.0015-0.2	0.00-0.00	0.0-2.9	0.0-1.0	.24	.32		
57A,67B:		 	 			 	 	 	 				
Dalton	0 - 9	0-50	50-80	0-17	1.10-1.40	0.6-2	0.17-0.21	0.0-2.9	2.0-4.0	.43	.49	:	
i	9-17	0-85	0-80	0-17	1.20-1.50	0.6-2	0.16-0.20	0.0-2.9	0.0-1.0	.64	.64	İ	
į	17-29	0-85	0-80	0-17	1.70-2.00	0.0015-0.2	0.00-0.00	0.0-2.9	0.0-1.0	.28	.32	İ	
	29-72	0-52	28-80	0-17	1.70-2.00	0.0015-0.2	0.00-0.00	0.0-2.9	0.0-1.0	.28	.32	į	
58A,68B,68C:		 	 		 	 							
Volusia	0-7	15-32	50-80	0-27	1.10-1.40	0.6-2	0.11-0.17	0.0-2.9	2.0-7.0	.24	.32	1 :	
i	7-16	15-52	28-80	18-27	1.30-1.60	0.6-2	0.09-0.16	0.0-2.9	0.0-1.0	.24	.28	i	
i	16-45	15-52	28-80			0.0015-0.2	0.00-0.00	0.0-2.9	0.0-1.0	.24	.28	İ	
	45-72	15-52	28-80	18-27	1.65-1.95	0.0015-0.2	0.00-0.00	0.0-2.9	0.0-1.0	.24	.32		
59A,69B,69C:		 	 		 	 							
Erie	0-9	15-32	50-80	0-27	1.10-1.40	0.6-2	0.10-0.18	0.0-2.9	3.0-7.0	.24	.32	1:	
	9-14	15-52	28-80	_	1.20-1.50		0.09-0.16		0.0-1.0	.24	.28		
j	14-45	15-52	28-80		1.70-2.00		0.00-0.00	1	0.0-1.0	.24	.32	i	
	45-72	15-52	28-80	l	1.65-1.95	1	0.00-0.00	1	0.0-1.0	.24	.32		
/1E,71F:		 	 		 	 	 	 					
Mongaup	0 - 4	15-50	50-80	0-17	1.10-1.40	0.6-2	0.08-0.16	0.0-2.9	2.0-6.0	.24	.32	1:	
<u>-</u>	4-27	15-85	0-80	_	1.10-1.40		0.08-0.16		0.0-2.0	.24	.28		
	27-37					0.0000-0.2						į	
72B,72C,72D,72E,72F:		 			 	 	 	 					
Towerville	0-7	15-32	50-80	0-27	1.10-1.40	0.6-2	0.12-0.19	0.0-2.9	3.0-8.0	.28	.32	1:	
	7-23	15-52	28-80	_	1.20-1.50		0.12-0.18		0.0-1.0	.28	.32	1	
i	23-32	15-52	28-80		1.60-1.80		0.09-0.18		0.0-1.0	.28	.32	i	
	32-42					0.0000-0.06							
/3B,73C:		[ [	 		 	 	 	 					
Gretor	0-8	15-32	   50-80	0-27	1.00-1.30	0.6-2	0.12-0.17	0.0-2.9	3.0-9.0	.24	.32	1	
122301	8-21	15-52	20-80	l	1.10-1.40	1	0.12-0.17	1	0.0-1.0	.28	.32	1	
	21-25	15-52	20-80	l	1.30-1.65	0.2-0.6	0.08-0.14		0.0-1.0	.28	.32	i	
		,			,	, ,,,,	, <b></b>	,	, ,,,,,	,		1	

Table 22.-Physical Properties of the Soils-Continued

Table	22Ph	ysical	Properties	οf	the	Soils-Continued
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Map symbol and soil name	Depth	   Sand 	   Silt	Clay	   Moist   bulk	   Permea-   bility	  Available   water	   Linear  extensi-	   Organic   matter	LIOSIO	on fac	tor
and Boll name		i	i i		density	(Ksat)	capacity	bility	I	Kw	Kf	T
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct			<del>-</del>
74:		 	 		 		 	 	 		 	
Ashville	0 - 9	15-32	50-80		1.10-1.40	1	0.16-0.22	I .	4.0-8.0	.28	.32	4
	9-44	15-52	28-80		1.20-1.50		0.14-0.20	1	0.0-1.0	.37	.37	
	44-72	15-82	0-80	18-27	1.50-1.80	0.06-0.6	0.11-0.18	0.0-2.9	0.0-1.0	.28	.32	
75:		İ	į									
Alden	0-6	15-32	50-80		1.10-1.40		0.16-0.22	I .	10-20	.24	.28	4
	6-25	15-82	0-80		1.20-1.50		0.14-0.20	I .	0.0-1.0	.37	.37	!
i	25-72	15-82 	0-73	18-35	1.50-1.80	0.06-0.6 	0.08-0.15	0.0-2.9 	0.0-1.0	.28	.32	
76A,76B,76C:		İ	į							İ		ļ
Orpark	0-8	15-32	50-80		1.10-1.40		0.14-0.21		3.0-7.0	.28	.32	3
	8-22	15-32	45-80		1.20-1.60	1	0.14-0.20	I .	0.0-1.0	.32	.32	!
	22-24	15-32	45-80		1.30-1.60	1	0.13-0.18	1	0.0-1.0	.32	.37	!
	24-26 26-36	15-32	45-80	18-35	1.30-1.60	0.0000-0.2  0.0000-0.06	0.13-0.18	0.0-2.9	0.0-1.0	.32	.37	1
i	20-30	 			 		 	 	 			
77A:		j	į į		į	į	į		İ	į	į	į
Chippewa	0-6	15-32	50-80		1.00-1.30		0.17-0.19	I .	3.0-10	.28	.32	2
	6-19	15-52	20-80		1.20-1.50	1	0.10-0.16		0.0-2.0	.32	.37	!
	19-41	15-82	0-80		1	0.0015-0.2	0.00-0.00		0.0-1.0	.24	.28	!
i	41-72	15-82 	0-80	18-35	1.65-1.95 	0.0015-0.2 	0.00-0.00	0.0-2.9	0.0-0.0	.24	.32	
78A,78B,78C,78D:		İ	į į							İ	İ	
Hornell	0-8	0-50	50-80		1.10-1.40		0.16-0.21	I .	3.0-7.0	.37	.43	3
	8-28	0-45	0-65			0.0015-0.2	0.11-0.13		0.0-1.0	.28	.32	!
	28-34 34-44	0-45	0-65	35-60	1.30-1.55 	0.0015-0.2	0.06-0.12	3.0-5.9	0.0-0.5	.28	.32	
	34-44	 			 	0.0005		 				
		į	į į		į	į	į		į	į	į	į
78F:	0-8	   0-50	   50-80	18-27	  1.10-1.40	   0.6-2	  0.16-0.21		3.0-7.0	.37	.43	
normeri	8-28	0-30	0-65			0.0015-0.2	0.11-0.13	1	0.0-1.0	.28	.32	]
i	28-34	0-45	0-65			0.0015-0.2	0.06-0.12		0.0-0.5	.28	.32	i
i	34-44					0.0000-						i
		į	į į		į	0.0015	į		į	į		
Hudson	0-7	   0-50	   50-80	18-27	  1.00-1.25	   0.2-2	  0.16-0.21	   3.0-5.9	3.0-6.0	1.49	   .49	
	7-16	0-50	40-80		1.15-1.40	1	0.13-0.17	I .	0.0-1.0	.28	.28	
İ	16-38	0-20	40-65	35-60	1.15-1.40	0.0015-0.2	0.13-0.17	3.0-5.9	0.0-1.0	.28	.28	i
	38-72	0-50	40-	0-60	1.15-1.40	0.0015-0.2	0.12-0.20	3.0-5.9	0.0-1.0	.28	.28	
		 	100		 	 	 	 	 			
79B,79C,79D,79E,79F:												
Mongaup	0 - 4	15-50	50-80		1.10-1.40		0.08-0.16		2.0-6.0	.24	.32	3
I	4-27	15-85	0-80		1.10-1.40	0.6-2	0.08-0.16	1	0.0-2.0	.24	.28	ļ
	27-37					0.0000-0.2						1

Map symbol	Depth	   Sand	   Silt	Clay	   Moist	   Permea-	  Available	Linear	   Organic	Erosi	on fac	tor
and soil name		ј 	i i		bulk density	bility (Ksat)	water  capacity	extensi- bility	matter	Kw	   Kf	   T
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct			
80A,80B,80C:		! 			 	 	 	 	 		 	
Fremont	0 - 9	15-32	50-80	0-27	1.10-1.40	0.6-2	0.16-0.21	0.0-2.9	3.0-8.0	.28	.32	4
ĺ	9-39	15-32	45-80	18-35	1.20-1.50	0.2-2	0.12-0.19	0.0-2.9	0.0-1.0	.32	.37	
İ	39-72	15-32	45-80	18-35	1.40-1.65	0.0015-0.2	0.08-0.14	0.0-2.9	0.0-1.0	.24	.32	
81B,81C,81D,81E:		 			 	 	 	 	] 		 	
Varysburg	0-5	0-52	50-80	0-27	1.10-1.40	0.6-6	0.08-0.17	0.0-2.9	2.0-6.0	.24	.32	3
i	5-22	0-85	0-80	0-27	1.25-1.55	0.6-6	0.05-0.12	0.0-2.9	0.0-1.0	.24	.32	İ
į	22-33	24-85	0-50	0-34	1.25-1.55	0.6-6	0.05-0.09	0.0-2.9	0.0-1.0	.24	.32	İ
į	33-48	0-20	40-73	35-60	1.20-1.40	0.0015-0.06	0.14-0.17	3.0-5.9	0.0-1.0	.32	.32	İ
i	48-72	0-52	i o- i	0-90	1.15-1.40	0.0015-0.06	0.13-0.14	3.0-5.9	0.0-1.0	.32	.32	i
			100									
82F:												
Rock Outcrop	0-60					0.0000-0.01						-
Manlius	0-4	0-50	50-80	0-27	  1.10-1.40	0.6-6	  0.10-0.18	0.0-2.9	1.0-5.0	.24	.32	3
İ	4-23	0-52	28-80	0-27	1.20-1.50	0.6-6	0.08-0.12	0.0-2.9	0.0-1.0	.20	.28	İ
į	23-34	0-52	28-80	0-27	1.70-1.95	0.6-6	0.03-0.09	0.0-2.9	0.0-0.0	.20	.32	İ
ļ	34-44	j	ļ ļ	0-0	j	0.0000-	0.00-0.00	j	j		ļ	İ
i		 			l I	10.0015	 	 			ł	-
84B,84C:		i			 	 	 	 			i	1
Elko	0-6	15-32	50-80	0-27	1.25-1.50	0.6-2	0.16-0.20	0.0-2.9	3.0-7.0	.28	.32	3
11110	6-26	15-52	28-80		1.35-1.65	1	0.12-0.16		0.0-1.0	.24	.28	"
i	26-64	15-52	28-80		1.65-1.85	=	0.00-0.00		0.0-1.0	.17	.24	1
	64-72	15-82	0-80		1.55-1.80	I .	0.00-0.00	1	0.0-1.0	.24	.28	
85B,85C,85D:					 		 	 				
Onoville	0-8	15-32	50-80	0.27	  1.25-1.50	0.6-2	0.16-0.24	0.0-2.9	3.0-7.0	.28	.32	3
Olloville	8-22	15-52	28-80		1.35-1.65	1	0.12-0.19	1	0.0-1.0	.24	.28	]
ļ	22-65	15-52	20-73		1.65-1.85	1	0.00-0.00		0.0-1.0	.24	.28	-
	65-72	0-52	0-80		1.55-1.80		0.00-0.00		0.0-1.0	.24	.32	
86B,86C,86D:												
86B,86C,86D:   Eldred	0-3	   15-32	   50-80	0 27	  1.10-1.30	   0.6-2	  0.16-0.20	0.0-2.9	1.0-4.0	.28	.32	4
Eldred		1	1				1	1	1	1		4
	3-14	15-52	28-80		1.20-1.50		0.12-0.16		0.0-1.0	.24	.28	!
	14-42	15-45	20-80		1.20-1.60		0.08-0.12	1	0.0-1.0	.17	.24	!
	42-72	15-45 	20-80	0-40	1.20-1.60	0.06-0.6	0.08-0.12	3.0-5.9	0.0-1.0	.24	.28	
87B,87C:		İ	j j		İ	İ				İ	İ	İ
Shongo	0 - 6	15-32	50-80		1.20-1.40	I .	0.18-0.21	0.0-2.9	4.0-7.0	.28	.32	3
İ	6-24	15-52	28-80	0-35	1.20-1.40	0.2-2	0.16-0.20	3.0-5.9	0.0-1.0	.43	.43	
į	24-56	15-52	20-80	18-35	1.30-1.60	0.06-0.6	0.00-0.00	3.0-5.9	0.0-1.0	.28	.37	
	56-72	15-52	20-80		1.30-1.60	0.06-0.6	0.00-0.00	3.0-5.9	0.0-1.0	.28	.37	i

Table 22.-Physical Properties of the Soils-Continued

Table 22.-Physical Properties of the Soils-Continued

No.   Pot	Map symbol and soil name	   Depth 	   Sand	   Silt	Clay	   Moist   bulk	Permea-   bility	  Available   water	   Linear  extensi-	   Organic   matter	Erosi	on fac	lors
88A,88B,88C,88D:    In	and Boll name	l İ				1		1		I	Kw	Kf	T
Tyory		In	Pct	Pct	Pct	·	I	' <u> </u>	·	Pct	-		ļ <u> </u>
Section   Sect	88A,88B,88C,88D:	 				 			 				 
89B,89C: Portville	Ivory		1			1	1	1		1	1	.49	3
89B,89C: Portville		1	1			1	1	1		1	1	1	
89B,89C:  Portville		1	1			1	1	1				.32	ļ
Portville		48-72 	0-45	0-65	27-60	1.50-1.75	0.06-0.2	0.05-0.15	3.0-5.9	0.0-1.0	.28	.32	
7-22	-												
22-50   15-52   20-80   18-35   1.30-1.60   0.06-0.6   0.00-0.00   3.0-5.9   0.0-1.0   .28   .37	Portville	1	1					1				.37	3
90A,90B:  Brinkerton		I	1			1	1	1	1	1		.43	
90A, 90B: Brinkerton			1			1	1	1		1	1	1	
Brinkerton		50-72	15-52	20-80	0-40	1.30-1.60	0.06-0.6	0.00-0.00	3.0-5.9	0.0-1.0	.28	.37	
	90A,90B:	 											
91A: Palms	Brinkerton	0-7	0-50	50-80		1	1	1		1	.37	.43	3
91A: Palms			1			1	1	1		1	1	.43	
91A: Palms			1			1	1	1	1			.43	
Palms		45-72	0-52	28-80	0-40	1.40-1.55	0.06-0.2	0.00-0.00	0.0-2.9	0.0-0.5	.20	.64	
12-32									[				
92: Carlisle	Palms			1		1	1	1			1		2
92: Carlisle		I	1	1				1	1		1	1	ļ
Carlisle		32-72 	0-85	0-73	0-34	1.45-1.75 	0.2-2	0.14-0.22	0.0-2.9	4.0-8.0	.37	.37	
93: Saprists, Inundated 38-72 0-85 0-73 0-34 1.45-1.75 0.2-2 0.14-0.22 0.0-2.9 4.0-8.0 37 37  94B,94C: Frewsburg 0-6 15-32 50-80 0-27 1.25-1.50 0.6-2 0.15-0.23 0.0-2.9 0.0-2.9 0.0-2.9 0.0-2.9 0.0-1.0 0.24 0.24 0.28 18-38 15-52 0-80 18-35 1.35-1.65 0.2-2 0.09-0.15 0.0-2.9 0.0-1.0 0.24 0.28 0.29 0.09-0.15 0.0-2.9 0.0-1.0 0.24 0.28 0.29 0.29 0.29 0.20-1.0 0.24 0.28 0.29 0.29 0.29 0.29 0.29 0.29 0.29 0.29													
Saprists, Inundated 0-38	Carlisle	0-72			0 - 0	0.13-0.23	0.2-6	0.35-0.45		70-99			3
94B,94C: Frewsburg	93:	 				 							 
94B,94C: Frewsburg	Saprists, Inundated	0-38			0 - 0	0.30-0.60	0.2-20	0.35-0.45	j	50-95	j	j	2
Frewsburg		38-72	0-85	0-73	0-34	1.45-1.75	0.2-2	0.14-0.22	0.0-2.9	4.0-8.0	.37	.37	į
Frewsburg	94B.94C:	 				 			 				 
6-18   15-52   20-80   18-35   1.40-1.65   0.2-2   0.12-0.19   0.0-2.9   0.0-1.0   .24   .28   18-38   15-52   20-80   18-35   1.35-1.65   0.2-2   0.09-0.15   0.0-2.9   0.0-1.0   .24   .28   .	• • • • • • • • • • • • • • • • • • • •	0-6	15-32	50-80	0-27	1.25-1.50	0.6-2	0.15-0.23	0.0-2.9	3.0-7.0	.28	.32	3
18-38   15-52   20-80   18-35   1.35-1.65   0.2-2   0.09-0.15   0.0-2.9   0.0-1.0   .24   .28	<b>.</b>	6-18	15-52	20-80				1		0.0-1.0	.24	.28	i
95B,95C,95D,95E,95F: Mandy		18-38	15-52	20-80				0.09-0.15	0.0-2.9	0.0-1.0	.24	.28	İ
Mandy		38-48					0.0000-0.06		ļ		ļ		į
Mandy	95B.95C.95D.95E.95F:	 							 				
2-24		0-2	0-50	50-80	0-27	1.20-1.50	0.6-2	0.08-0.12	0.0-2.9	0.5-3.0	.24	.32	3
33-43 0.0000-20 96B,96C,96D,96E,96F:  Carrollton 0-2 15-32 50-80 0-27 1.25-1.50 0.6-2 0.16-0.20 0.0-2.9 3.0-7.0 .24 .32 2-23 15-52 28-80 18-35 1.35-1.65 0.6-2 0.12-0.17 0.0-2.9 0.0-1.0 .24 .32 23-30 15-52 28-80 18-35 1.35-1.65 0.6-2 0.12-0.17 0.0-2.9 0.0-1.0 .24 .32	•	2-24	0-52	28-80	0-27	1.20-1.60	0.6-2	0.04-0.10	0.0-2.9	0.0-1.0	.17	.24	
96B,96C,96D,96E,96F: Carrollton		24-33	0-52	28-80	0-27	1.20-1.60	0.6-2	0.04-0.10	0.0-2.9	0.0-1.0	.17	.24	İ
Carrollton		33-43					0.0000-20		ļ		ļ		į
Carrollton	96B,96C,96D,96E,96F.	 				 			 				
2-23   15-52   28-80   18-35   1.35-1.65   0.6-2   0.12-0.17   0.0-2.9   0.0-1.0   .24   .32   23-30   15-52   28-80   18-35   1.35-1.65   0.6-2   0.12-0.17   0.0-2.9   0.0-1.0   .24   .32		0-2	15-32	50-80	0-27	1.25-1.50	0.6-2	0.16-0.20	0.0-2.9	3.0-7.0	.24	.32	3
23-30   15-52   28-80   18-35   1.35-1.65   0.6-2   0.12-0.17   0.0-2.9   0.0-1.0   .24   .32		1	1									.32	i
		1	1			1	1	1				.32	İ
30-40         0.0000-0.06		30-40					0.0000-0.06						İ

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Map symbol	Depth	   Sand	Silt	Clay	   Moist	   Permea-	  Available	   Linear	   Organic	Erosi	on fac	to:
and soil name		į i	j		bulk	bility	water	extensi-	matter			T
į		j i	i		density	(Ksat)	capacity	bility	İ	Kw	Kf	1:
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct			-
7B,97C,97D,97E,97F:		 			 	 		 				
Kinzua	0-3	15-32	50-80	0-27	1.25-1.50	0.6-2	0.13-0.24	0.0-2.9	3.0-7.0	.24	.32	į,
į	3-45	15-52	28-80	18-35	1.40-1.70	0.6-2	0.08-0.13	0.0-2.9	0.0-1.0	.24	.28	İ
	45-72	15-52	20-80		1.60-1.80	1	0.10-0.16	1	0.0-1.0	.24	.28	į
8D,98E:		 			 	 		 				
Kinzua	0-3	15-32	50-80	0-27	1.25-1.50	0.6-2	0.13-0.24	0.0-2.9	3.0-7.0	.24	.32	i
	3-45	15-52	28-80		1.40-1.70	1	0.08-0.13		0.0-1.0	.24	.28	i
	45-72	15-52	20-80		1.60-1.80		0.10-0.16		0.0-1.0	.24	.28	į
9B,99C,99D:		 			 	 	 	 	 			
Buchanan	0-6	15-32	50-80	0-27	1.20-1.40	0.6-2	0.14-0.20	0.0-2.9	2.0-4.0	.28	.32	İ
į	6-33	15-80	0-80	18-35	1.30-1.50	0.6-2	0.12-0.16	3.0-5.9	0.0-0.5	.32	.32	i
į	33-45	15-80	0-80	18-35	1.40-1.70	0.06-0.2	0.00-0.00	0.0-2.9	0.0-0.5	.32	.37	i
	45-72	15-80	0-80	0-40	1.30-1.60	0.06-0.2	0.00-0.00	3.0-5.9	0.0-0.5	.32	.37	İ
00:		 			 	 	 	 	 			
Udorthents	0 - 4	44-85	0-49		1.20-1.60		0.04-0.13	0.0-2.9	0.0-4.0	.10	.17	İ
	4-70	0-100	0-80	0-60	1.30-1.70	0.6-20	0.02-0.11	0.0-2.9	0.0-1.0	.17	.24	İ
.01:		 			 	 		 	 			
Udorthents, Refuse	0-24	25-52	28-50	7-27	1.20-1.80	0.06-20	0.03-0.15	0.0-2.9	0.0-4.0	.10	.17	į
Substratum	24-70	 			 	   0.06-20	 	 	0.0-1.0			
   L02C:		į į	į		į	ļ	İ	į	į	İ	İ	İ
Mandy	0-2	   0-50	50-80	0 27	  1.20-1.50	0.6-2	0.08-0.12	1 0 0 2 0	0.5-3.0	.24	.32	
mandy	2-24	0-50	28-80		1.20-1.60		0.08-0.12		0.5-3.0	1.17	.32	-
	24-33	0-52	28-80		1.20-1.60	1	0.04-0.10		0.0-1.0	1.17	.24	-
	33-43	0-32				0.000-20						
Rock Outcrop	0-60	 			 	  0.0000-0.01	 	 	 		 	
.03C:		į į	į						ļ	İ	İ	İ
Knapp Creek	0-3	 		0-0	  0.30-0.40	   2-20	  0.20-0.35	 	65-90			
whath creek	0-3 3-11	   70-91	0-29		1.20-1.40	1	0.20-0.35	1	2.0-4.0	.17	.24	
	11-22	70-91     24-91	0-29		1.20-1.40	2-20	0.06-0.10		0.0-1.0	1.17	.20	
	22-48	24-91	0-50		1.20-1.40	2-20	0.06-0.10		0.0-1.0	1.17	.20	-
	48-58	24-91	0-50		1.20-1.40	1	0.06-0.10	1	0.0-1.0	1.17	.20	
	58-68					0.0000-0.2						
Rock Outcrop	0-60	 			 	  0.0000-0.01	 	 				

Table 22.-Physical Properties of the Soils-Continued

Table	22Ph	ysical	Propertie	s of	the	Soils-Continued
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Map symbol and soil name	Depth	   Sand 	Silt	Clay	   Moist   bulk	Permea- bility	  Available   water	extensi-	Organic matter	Erosi		T
		l			density	(Ksat)	capacity	_bility		Kw	Kf_	_T
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct			
104B,104C,104D,104E:		 			 				 		 	
Flatiron	0-1			0 - 0	0.30-0.40	2-20	0.20-0.35		65-90			4
	1-2	32-91	0-50	0-17	1.10-1.40	2-20	0.08-0.16	0.0-2.9	2.0-6.0	.15	.17	1
	2-36	32-91	0-50	0-17	1.20-1.40	2-20	0.06-0.12	0.0-2.9	0.0-1.0	.24	.28	
	36-47	32-91	0-50	0-17	1.20-1.60	0.2-6	0.06-0.12	0.0-2.9	0.0-1.0	.24	.28	
	47-60	0-91	0-73	0-40		0.2-6	0.10-0.17	0.0-2.9	0.0-1.0	.28	.28	
	60-72	32-91	0-50	0-17		0.2-6	0.08-0.14	0.0-2.9	0.0-1.0	.15	.20	
108D,108E,108F:		 			 	 			 		 	
Hartleton	0-10	0-50	50-80	0-27	1.20-1.40	0.6-6	0.10-0.14	0.0-2.9	1.0-3.0	.24	.32	4
	10-38	0-52	28-80		1.40-1.60		0.06-0.10		0.0-0.5	.20	.64	i -
i	38-58	0-52	28-80	0-27	1.40-1.60	0.6-6	0.04-0.08	0.0-2.9	0.0-0.5	.20	.32	i
	58-68				1	0.0000-0.2						
131:		 			 	 		 	 		 	
Lamson	0-16	44-85	0-49	0-17	1.10-1.40	0.6-6	0.15-0.22	0.0-2.9	3.0-10	.37	.37	4
Idmboli	16-35	44-85	0-49		1.25-1.55		0.12-0.17		0.0-4.0	.20	.20	*
	35-72	15-100	0-80		1.45-1.65		0.02-0.04		0.0-0.5	.20	.20	
132B,132C:								 				
Wiscoy	0-7	15-32	   50-80	0 27	  1.10-1.40	0.6-2	0.11-0.22		2.0-7.0	.24	.32	2
wiscoy	7-12	15-32	0-80		1.30-1.40		0.11-0.22	1	0.0-1.0	.24	.32	4
	12-36	15-52	28-80			0.015-0.2	1		0.0-1.0	.24	.28	!
	36-72	15-32	0-80		1.40-1.50		0.00-0.00		0.0-1.0	.64	.64	
125G 125D 125D		ļ			ĺ		İ		į	İ	ĺ	
135C,135D,135E: Hudson	۰			10 00			0 16 0 01		1 2 0 6 0	1 40		,
Hudson	0-7 7-16	0-50	50-80    40-80		1.00-1.25		0.16-0.21	1	3.0-6.0	1.49	.49 .28	3
	16-38	0-50	40-80    40-65		1.15-1.40		0.13-0.17		0.0-1.0	.28	.28	!
	38-72	0-20	40-65    40-		1.15-1.40		0.13-0.17		0.0-1.0	.28	.28	!
	30-72	0-50	100	0-60	1.15-1.40 	0.06-0.2	0.12-0.20	3.0-3.9	0.0-1.0	.20	.20 	
1405 1405		ļ					İ		ļ	į	ĺ	İ
140D,140E: Dunkirk	0-4	   0-50	   50-80	0 07	  1.35-1.55	   0.6-2	0 16 0 21	   0.0-2.9	3.0-6.0	.49	   .49	4
Dunkirk	0-4 4-14	0-50	0-80		1.40-1.70		0.16-0.21		1.0-3.0	1.49	.49	4
	14-48	0-82	0-80		1.40-1.70		0.16-0.20		0.0-2.0	.49	1.49	!
	48-72	0-82			1.40-1.75		0.10-0.20	1	0.0-2.0	.64	64	!
	40-72	0-100	100	0-40	1.40-1.65	0.2-0.6	0.12-0.20	0.0-2.9	0.0-1.0	.04	.04	
105G 105D		ĺ	į						İ			
185C, 185D:		15.20		10.05					2050	0.0	20	_
Onoville	0-8	15-32	50-80		1.25-1.50		1	0.0-2.9	3.0-7.0	.28	.32	3
	8-22	15-52	28-80		1.35-1.65		0.12-0.19		0.0-1.0	.24	.28	1
	22-65	15-52	20-73		1.65-1.85		0.00-0.00		0.0-1.0	.24	.28	
	65-72	0-52	0-80	T8-00	1.55-1.80	0.06-0.6	0.00-0.00	3.0-5.9	0.0-1.0	.24	.32	1

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Depth	Sand	Silt	Clay	Moist	Permea-	Available	1	Organic	ļ		_
	ļ			bulk	bility	water	extensi-	matter	ļ	!	
	l					·	! ——— <u>-</u> —	l	Kw	Kf_	1_
In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct			
0-6	15-32	   50-80	0-27	1.20-1.40	0.2-2	0.18-0.21	0.0-2.9	4.0-7.0	28	32	i.
						1		1	1		ŀ
		1		1		1	1	1			ł
56-72	15-52	20-80						0.0-1.0	.28	.37	
i	ļ	į į				ļ	ļ	ļ	ļ	ĺ	į
'											
				1		1	1		1		
	1			1		1	1	1	1	1	
				1		1	1	1	1		ļ
						1			1		ļ
68-72				 	0.0000-0.2	 					
0-7	15-20	45-73	27-35	1.20-1.40	0.2-2	0.18-0.22	0.0-2.9	4.0-7.0	.32	.37	İ
7-22	15-52	28-80	18-35	1.20-1.40	0.2-2	0.16-0.22	3.0-5.9	0.0-1.0	.43	.43	İ
22-50	15-52	20-80	18-35	1.30-1.60	0.06-0.6	0.00-0.00	3.0-5.9	0.0-1.0	.28	.37	İ
50-72	15-52	20-80	0-40	1.30-1.60	0.06-0.6	0.00-0.00	3.0-5.9	0.0-1.0	.28	.37	İ
0-2	0-50	50-80	0-27	1.20-1.50	0.6-2	0.08-0.12	0.0-2.9	0.5-3.0	.24	.32	i
2-24	0-52	28-80				1	1	0.0-1.0	.17	.24	i
24-33	0-52	28-80	0-27	1.20-1.60	0.6-2	0.04-0.10	0.0-2.9	0.0-1.0	.17	.24	i
33-43					0.0000-20			ļ	j		į
	 			 	İ	 	 	 		 	
0-6	   15-32	   50-80	0-27	  1 20-1 40	0 6-2	  0 14-0 20	   0 0-2 9	2 0-4 0	28	32	ł
		1 1						1	1		1
	I			1		1	1	1	1	1	-
		1		1					1		1
43-72	13-00	0-00	0-40				3.0-3.3		.52	.57	
0-7	15-32	50-80		1		1	1		.24	.32	
		20-80							1	1	
	15-52	20-80	18-40	1.30-1.60		1	0.0-2.9	0.0-0.5	.17	.28	
44-54					0.0000-0.06						
0-10	0-50	50-80	0-17	1.15-1.40	0.6-2	0.18-0.21	0.0-2.9	2.0-6.0	.43	.43	i
	0-85	0-80							.49		i
43-52	0-91	0-80		1	0.6-2	1	1	0.0-1.0	.49	.49	i
		1							1		i
	0-6 6-24 24-56 56-72 0-7 7-14 14-44 44-68 68-72 0-7 7-22 22-50 50-72 0-2 2-24 24-33 33-43 0-6 6-33 33-45 45-72 0-7 7-29 29-44 44-54	0-6	0-6	0-6       15-32       50-80       0-27         6-24       15-52       28-80       18-35         24-56       15-52       20-80       0-40         0-7       15-52       20-80       0-40         0-7       0-50       50-80       18-27         7-14       0-50       40-80       18-60         14-44       0-45       0-65       35-60         44-68       0-45       0-65       27-60         68-72            0-7       15-20       45-73       27-35         7-22       15-52       28-80       18-35         22-50       15-52       20-80       18-35         50-72       15-52       20-80       0-40         0-2       0-50       50-80       0-27         2-24       0-52       28-80       0-27         24-33       0-52       28-80       0-27         33-43            0-6       15-32       50-80       0-27         6-33       15-80       0-80       18-35         345-72       15-80       0-80       0-40         0-7	In         Pct         Pct         Pct         Pct         g/cc           0-6         15-32         50-80         0-27         1.20-1.40           6-24         15-52         28-80         18-35         1.20-1.40           24-56         15-52         20-80         18-35         1.30-1.60           0-7         0-50         50-80         18-27         1.20-1.40           7-14         0-50         40-80         18-60         1.30-1.55           14-44         0-45         0-65         35-60         1.30-1.55           44-68         0-45         0-65         27-60         1.50-1.75           68-72               0-7         15-20         45-73         27-35         1.20-1.40           7-22         15-52         28-80         18-35         1.20-1.40           7-22         15-52         20-80         18-35         1.30-1.60           50-72         15-52         20-80         18-35         1.30-1.60           0-2         0-50         50-80         0-27         1.20-1.50           2-24         0-52         28-80         0-27         1.20-1.60		Not	Note	No.   Pet	No.   Pet	No.

Table 22.-Physical Properties of the Soils-Continued

Table 22.-Physical Properties of the Soils-Continued

		_ ,	-	~7		_			.	Erosi	on fac	tor
Map symbol	Depth	Sand	Silt	Clay	Moist	Permea-	Available water	Linear extensi-	Organic		1	
and soil name		!	!!		bulk	bility			matter		K£	! _
			!!		density	(Ksat)	capacity	bility		Kw	KI_	<u> </u>
	In	Pct 	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct			
496B,496C,496D,496E, 496F:		   			   	   	   		   		İ	
Gilpin	0 - 4	15-32	50-80	0-27	1.20-1.40	0.6-2	0.12-0.16	0.0-2.9	2.0-4.0	.24	.32	3
i	4-26	15-52	20-80	18-35	1.20-1.50	0.6-2	0.12-0.16	0.0-2.9	0.0-1.0	.24	.28	İ
į	26-35	15-52	28-80	0-40	1.20-1.50	0.6-2	0.08-0.12	0.0-2.9	0.0-1.0	.24	.32	İ
	35-45		ļ ļ			0.0000-0.06			ļ			į
497D,497E,497F:		 			 	 	 		 			
Rayne	0 - 4	15-32	50-80	0-27	1.20-1.40	0.6-2	0.12-0.16	0.0-2.9	2.0-4.0	.24	.32	4
i	4-38	15-52	20-80	18-35	1.40-1.60	0.6-2	0.12-0.16	0.0-2.9	0.0-1.0	.20	.24	İ
	38-72	15-52	20-80	0-40	1.40-1.60	0.6-2	0.10-0.16	0.0-2.9	0.0-1.0	.20	.28	į
498E:		 	 			 			 			
Rayne	0 - 4	15-32	50-80	0-27	1.20-1.40	0.6-2	0.12-0.16	0.0-2.9	2.0-4.0	.24	.32	4
j	4-38	15-52	20-80	18-35	1.40-1.60	0.6-2	0.12-0.16	0.0-2.9	0.0-1.0	.20	.24	i
	38-72	15-52	28-80	0-40	1.40-1.60	0.6-2	0.10-0.16	0.0-2.9	0.0-1.0	.20	.28	į
800:		 	 			 	 		 			
Holderton	0-6	15-50	50-80	0-17	1.15-1.40	0.6-2	0.18-0.21	0.0-2.9	2.0-6.0	.37	.37	5
İ	6-36	15-85	0-80	0-17	1.15-1.45	0.6-2	0.10-0.20	0.0-2.9	0.0-1.0	.28	.28	i
	36-72	15-85	0-80	0-17	1.25-1.55	0.6-6	0.01-0.10	0.0-2.9	0.0-1.0	.20	.24	į
PG:		 	 		 	 	 		 			
Pits, Gravel			ļ ļ									-
Ur:		 	 			 	 		 			
Urban Land			i i									-
W:		 	 		 	 	 		 			
Water			i i		j		i		j		j	j -

Table 23.—Chemical Soil Properties

(Absence of an entry indicates that data were not estimated.)

Map symbol and soil name	Depth	Soil  reaction
	Inches	рН
1: Udifluvents	0 - 9 9 - 7 0	4.5-7.3   4.5-8.4
Fluvaquents	0-12 12-72	4.5-7.3
2: Hamlin	0-10 10-17 17-36 36-72	   5.1-7.3   5.1-7.3   5.6-7.8   5.6-7.8
3: Tioga	0-8 8-34 34-72	   5.1-7.3   5.1-7.3   5.6-7.8
1: Teel	0-8 8-34 34-72	   5.1-7.3   5.1-7.3   5.6-7.8
5: Wayland	0-9 9-25 25-72	   5.1-7.8   5.1-7.8   5.6-8.4
5A: Wyalusing	0-6 6-27 27-72	   5.1-6.5   5.1-6.5   5.1-6.5
7A: Philo	0-8 8-34 34-46 46-72	4.5-6.0   4.5-6.0   4.5-6.0   4.5-6.0
B: Middlebury	0-8 8-30 30-72	   5.1-6.5   5.6-7.3   5.6-7.3
9: Pawling	0-9 9-28 28-72	   5.1-6.0   5.1-6.0   5.6-7.3
LO: Atkins	0-4 4-38 38-72	4.5-5.5   4.5-5.5   4.5-6.0
11B,11C,11D,11E,11F: Ischua	0-6 6-23 23-28 28-38	4.5-6.0   4.5-6.0   4.5-6.5 

Table 23.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Soil  reaction
	Inches	рн
12D 12G 12D 12E		
12B,12C,12D,12E:     Franklinville	0-3	4.5-6.0
	3-32	4.5-6.0
İ	32-42	4.5-6.0
	42-72	5.1-6.5
4B,14C:		
Hornellsville	0-5	3.5-5.5
	5-34	4.5-5.5
	34-48	
5B,15C,15D: Willdin	0 - 6	4.5-6.0
WIIIdiii	6-24	4.5-6.0
i	24-60	4.5-6.5
	60-72	5.1-6.5
.6A,16B,16C:		
Almond	0 - 7	4.5-6.0
	7-37	4.5-6.0
	37-72	5.1-7.3
7B,17C,17D,17E:		
Salamanca	0-8	4.5-6.0
	8-16 16-37	4.5-6.0
	37-72	4.5-6.5
8A:		
Pope	0-10	4.5-5.5
	10-38	4.5-5.5
	38-72	4.5-5.5
9A,19B:		İ
Olean	0-9	4.5-6.0
	9-23	4.5-6.0
İ	23-36	4.5-6.0
	36-72	4.5-7.3
OA,20B,20C,20D:		
Unadilla	0-9 9-55	4.5-6.0
	55-72	5.1-7.8
2A,22B:		
Allard	0 - 9	4.5-6.0
	9-34	4.5-6.0
	34-72	5.1-7.3
5A,25B,25C,25D,25E,		
5F: Chenango	0-9	4.5-6.0
	9-30	4.5-6.0
	30-72	5.1-7.8
Chenango, fan	0-9	4.5-6.0
change, ran	9-45	4.5-6.0
i	45-72	5.1-7.8
		1

Table 23.—Chemical Soil Properties—Continued

		1
Map symbol and soil name	Depth	Soil  reaction
	Inches	рН
27A,27B: Castile	0-10 10-30 30-72	4.5-6.0 4.5-6.0 5.1-7.3
28A: Scio	0-9 9-50 50-72	4.5-7.0   4.5-6.0   5.1-7.8
29A,29B,29C,29D,29E: Chenango	0-9 9-30 30-72	4.5-6.0 4.5-6.0 5.1-7.8
31B,31C: Collamer	0-6 6-24 24-45 45-72	5.1-7.3   5.1-7.3   5.6-7.8   6.1-8.4
32A,32B: Churchville	0-14 14-37 37-72	   5.6-7.3   6.1-7.8   7.4-8.4
33A: Wallington	0-8 8-14 14-38 38-72	4.5-6.0   4.5-6.0   4.5-7.3   5.6-7.3
34: Getzville	0-9 9-24 24-72	   5.1-7.3   5.6-7.3   6.6-7.8
35A,35B,35C: Rhinebeck	0-9 9-13 13-38 38-72	   5.1-7.3   5.1-7.8   5.1-7.8   6.1-8.4
36: Canadice	0-8 8-42 42-72	   4.5-6.5   4.5-7.8   6.6-8.4
37A,37B: Tonawanda	0-9 9-38 38-72	5.1-7.3   5.1-7.3   5.6-7.8
38A,38B: Niagara	0-12 12-36 36-72	   5.1-7.3   5.6-7.8   6.6-8.4
39A: Halsey	0-6 6-34 34-72	   5.6-7.3   5.6-7.3   6.1-8.4

Table 23.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Soil  reaction
	Inches	рН
40A,40B,40C: Williamson	0-8 8-20 20-38 38-72	   4.5-6.0   4.5-6.0   4.5-6.0   5.1-7.3
41A,41B: Barcelona	0-9 9-36 36-46 46-56	5.6-7.3 5.6-7.8 5.6-7.8
42A,42B: Elnora	0-7 7-27 27-72	3.5-6.5 3.5-6.5 5.1-7.3
43: Canandaigua, silt loam	0-9 9-32 32-72	   5.6-7.8   5.6-7.8   6.1-8.4
44: Canandaigua, mucky silt loam	0-10 10-32 32-72	5.6-7.8 5.6-7.8 5.6-7.8
45: Canandaigua, acid substratum	0-8 8-32 32-72	   5.6-7.8   5.6-7.8   5.6-7.3
46: Swormville	0-8 8-31 31-35 35-72	   5.1-7.3   5.6-7.3   5.6-7.3   6.1-7.8
47A: Minoa	0-9 9-32 32-36 36-72	   5.1-7.3   5.6-7.3   5.6-7.3   5.6-8.4
48A,48B,48C: Colonie	0-9 9-47 47-72	   4.5-6.5   4.5-6.5   5.6-7.3
49A: Red Hook	0-9 9-32 32-72	5.1-6.5 5.6-7.3 5.6-7.8
50A,50B,50C: Canaseraga	0-5 5-23 23-28 28-72	4.5-6.0   4.5-6.0   5.1-7.3   5.6-8.4

Table 23.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Soil  reaction 
	Inches	   pH
51B,51C,51D,51E,51F:	0-9	4.5-6.0
	9-33	4.5-6.0
	33-54 54-72	5.1-6.5 5.1-6.5
	54-72	5.1-6.5
52B,52C,52D,52E,52F:	0.6	
valois	0-6 6-27	3.5-6.0
	27-48	3.5-6.0
	48-72	4.5-7.3
53C:		
Valois	0-6 6-27	3.5-6.0
	27-48	3.5-6.0
	48-72	4.5-7.3
Volusia	0-7	4.5-6.0
	7-16	4.5-6.5
	16-45 45-72	5.1-6.5 5.1-7.8
	15 /2	
Mardin	0-6 6-17	4.5-6.0
	17-41	4.5-6.5
	41-72	5.1-7.3
55A,55B,55C:		<u> </u>
Darien	0-7	5.1-7.3
	7-14 14-38	5.1-7.3 5.1-7.3
	38-72	7.4-8.4
56B,56C,56D:		İ
Chautauqua	0-9	5.6-6.5
	9-36	5.1-6.5 5.1-6.5
	36-72	5.1-6.5
57A,57B,57C:	0.0	
Bust1	0-8 8-13	5.6-7.3 5.6-7.3
	13-39	5.6-7.3
	39-72	5.6-7.3
58B,58C:		
Rushford	0-4 4-21	4.5-6.5
	21-28	4.5-6.0
	28-36	4.5-6.5
	36-72	4.5-6.5
59B,59C,59D:		
Yorkshire	0-8 8-19	4.5-6.5
	19-56	4.5-6.5
	56-72	5.1-7.3
		I

Table 23.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	   Soil  reaction 
50A,60B,60C,60D:	Inches	рн
Napoli	0 - 9	4.5-6.5
Ī	9-23	4.5-6.0
ļ	23-46	4.5-6.5
	46-72	5.1-7.3
51B,61C,61D,61E,61F:		
Schuyler	0-6	4.5-6.0
- i	6-35	4.5-6.0
ļ	35-72	4.5-6.0
2B,62C,62D:		
Mardin	0 - 6	4.5-6.0
i	6-17	4.5-6.0
İ	17-41	4.5-6.5
	41-72	5.1-7.3
3B,63C,63D:		
Langford	0 - 7	4.5-6.5
İ	7-25	5.1-7.3
	25-44	5.1-7.8
	44-72	6.6-8.4
4C:		
Mardin	0-6	4.5-6.0
	6-17	4.5-6.0
	17-41 41-72	4.5-6.5 5.1-7.3
i	41-72	5.1-7.3
6B:		
Volusia	0 - 7	4.5-6.0
	7-16	4.5-6.5
	16-45 45-72	5.1-6.5
	/-	
7A,67B:		
Dalton	0-9 9-17	4.5-6.0
	17-29	5.1-6.0
İ	29-72	5.6-7.3
03. COD. COG		
8A,68B,68C: Volusia	0-7	4.5-6.0
.014614	7-16	4.5-6.5
i	16-45	5.1-6.5
ļ	45-72	5.1-7.8
0		
9A,69B,69C: Erie	0 - 9	5.1-6.5
-	9-14	5.1-6.5
İ	14-45	5.6-7.8
ļ	45-72	6.1-8.4
ነ ድ 71 ፑ •		3.5-5.5
:	0 – 4	•
:	0-4 4-27	3.5-6.0
:		3.5-6.0
Mongaup	4-27	3.5-6.0
1E,71F: Mongaup  2B,72C,72D,72E,72F: Towerville	4-27	3.5-6.0         4.5-6.0
Mongaup	4-27 27-37	       4.5-6.0
Mongaup 2B,72C,72D,72E,72F:	4-27 27-37 0-7	   

Table 23.—Chemical Soil Properties—Continued

Map symbol and soil name	   Depth 	Soil reaction
73B,73C:	Inches	   pH
Gretor	0-8 8-21 21-25 25-29	4.5-6.0 4.5-6.0 4.5-6.0
74: Ashville	0-9 9-44 44-72	5.1-7.3 5.6-7.3 5.6-8.4
75: Alden	0-6 6-25 25-72	5.1-7.3 5.6-7.3 5.6-7.8
76A,76B,76C: Orpark	0-8 8-22 22-24 24-26 26-36	4.5-6.1   4.5-5.5   4.5-5.5   4.5-5.5 
77A: Chippewa	0-6 6-19 19-41 41-72	4.5-6.5   4.5-6.5   5.1-7.3   5.6-8.4
78A,78B,78C,78D: Hornell	0-8 8-28 28-34 34-44	3.5-5.5 4.5-5.5 4.5-5.5
78F: Hornell	0-8 8-28 28-34 34-44	3.5-5.5 4.5-5.5 4.5-5.5
Hudson	0-7 7-16 16-38 38-72	5.1-7.3 5.1-7.3 5.6-7.8 6.6-8.4
79B,79C,79D,79E,79F: Mongaup	   0-4   4-27   27-37	3.5-5.5 3.5-6.0
80A,80B,80C: Fremont	0-9 9-39 39-72	4.5-6.3   4.5-6.0   5.1-7.3
81B,81C,81D,81E: Varysburg	0-5 5-22 22-33 33-48 48-72	5.1-6.0   5.1-6.0   5.1-6.0   5.1-6.4   6.1-8.4

Table 23.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Soil  reaction
	Inches	pH
82F: Rock outcrop	0-60	
Manlius	0-4 4-23 23-34 34-44	3.5-6.0 3.5-6.0 4.5-6.5
84B,84C: Elko	0-6 6-26 26-64 64-72	3.5-5.5 3.5-5.5 3.5-5.5 3.5-5.5
85B,85C,85D: Onoville	0-8 8-22 22-65 65-72	4.5-5.5   4.5-5.5   4.5-5.5   4.5-6.0
86B,86C,86D: Eldred	0-3 3-14 14-42 42-72	3.5-5.5 3.5-5.5 3.5-5.5 3.5-5.5
37B,87C: Shongo	0-6 6-24 24-56 56-72	4.5-6.0 4.5-6.0 4.5-6.0 4.5-6.0
88A,88B,88C,88D: Ivory	0-6 6-14 14-48 48-72	4.5-6.0 4.5-6.0 4.5-6.0 4.5-6.0
89B,89C: Portville	0-7 7-22 22-50 50-72	4.5-6.0 4.5-6.0 4.5-6.0 4.5-6.5
90A,90B: Brinkerton	0-7 7-25 25-45 45-72	4.5-6.0   4.5-6.0   4.5-6.0   5.1-6.5
91A: Palms	0-12 12-32 32-72	   5.1-7.8   5.1-7.8   6.1-8.4
92: Carlisle	0-72	4.5-7.8
93: Saprists, inundated	0-38 38-72	   5.1-7.3   5.1-8.4

Table 23.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	   Soil  reaction
	Inches	   pH
94B,94C: Frewsburg	0-6 6-18 18-38 38-48	4.5-5.5   4.5-5.5   4.5-5.5 
95B,95C,95D,95E,95F: Mandy	0-2 2-24 24-33 33-43	3.5-5.5 3.5-5.5 3.5-5.5 
96B,96C,96D,96E,96F: Carrollton	0-2 2-23 23-30 30-40	4.5-5.5   4.5-5.5   4.5-5.5 
97B,97C,97D,97E,97F: Kinzua	0-3 3-45 45-72	4.5-5.5 4.5-5.5 4.5-5.5
98D,98E: Kinzua	0-3 3-45 45-72	4.5-5.5   4.5-5.5   4.5-5.5
99B,99C,99D: Buchanan	0-6 6-33 33-45 45-72	3.5-5.5 3.5-5.5 3.5-5.5 3.5-5.5
100: Udorthents	0 - 4 4 - 70	4.5-8.4
101: Udorthents, refuse substratum	0-24 24-70	4.5-8.4 
102C: Mandy	0-2 2-24 24-33 33-43	3.5-5.5 3.5-5.5 3.5-5.5 
Rock outcrop	0-60	
103C: Knapp Creek	0-3 3-11 11-22 22-48 48-58 58-68	3.5-5.5 3.5-5.5 3.5-5.5 3.5-5.5 3.5-5.5
Rock outcrop	0-60	

Table 23.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Soil  reaction
	Inches	рН
104B,104C,104D,104E:     Flatiron	0-1 1-2	     3.5-5.5   3.5-5.5
108D,108E,108F:	2-36 36-47 47-60 60-72	3.5-5.5 3.5-5.5 3.5-5.5 3.5-5.5
Hartleton	0-10 10-38 38-58 58-68	4.5-5.5 4.5-5.5 4.5-5.5
131: Lamson	0-16 16-35 35-72	5.6-7.8 6.1-8.4 6.1-8.4
132B,132C: Wiscoy	0-7 7-12 12-36 36-72	4.5-7.3   4.5-7.3   4.5-7.3   4.5-7.3
135C,135D,135E: Hudson	0-7 7-16 16-38 38-72	5.1-7.3   5.1-7.3   5.6-7.8   6.6-8.4
140D,140E: Dunkirk	0-4 4-14 14-48 48-72	5.1-6.5   5.1-7.3   5.6-7.8   6.1-8.4
185C,185D: Onoville	0-8 8-22 22-65 65-72	4.5-5.5   4.5-5.5   4.5-5.5   4.5-6.0
187B,187C: Shongo	0-6 6-24 24-56 56-72	4.5-6.0 4.5-6.0 4.5-6.0 4.5-6.0
188B,188C,188D: Cavode	0-7 7-14 14-44 44-68 68-72	3.5-5.5 3.5-5.5 3.5-5.5 3.5-5.5
189B,189C: Portville	0-7 7-22 22-50 50-72	4.5-6.0 4.5-6.0 4.5-6.0 4.5-6.5

Table 23.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Soil  reaction 
	Inches	pH
195C,195D,195E: Mandy	0-2	3.5-5.5
	2-24 24-33 33-43	3.5-5.5 3.5-5.5
199C,199D: Buchanan	0-6 6-33	     3.5-5.5   3.5-5.5
	33-45 45-72	3.5-5.5
289B,289C,289D,289E, 289F:		
Ceres	0-7 7-29 29-44 44-54	3.5-7.3 3.5-7.3 4.5-6.0
400: Wakeville	0-10 10-43 43-52 52-72	5.6-7.3   5.6-7.3   5.6-7.8   5.6-7.8
496B,496C,496D,496E,		
Gilpin	0-4 4-26 26-35 35-45	3.5-5.5   3.5-5.5   3.5-5.5 
497D,497E,497F: Rayne	0-4 4-38 38-72	   4.5-5.5   4.5-5.5   4.5-5.5
498E: Rayne	0 - 4 4 - 38	     4.5-5.5   4.5-5.5
800:	38-72	4.5-5.5
Holderton	0-6 6-36 36-72	5.6-7.3 5.6-7.3 6.1-7.8
PG: Pits, gravel		
Ur: Urban land		
W: Water		

Table 24.-Water Features

(Depths of layers are in feet. See text for definitions of terms used in this table. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

			Water	table		Ponding		Flooding	
Map symbol and soil name	Hydro-  logic	Month	Upper limit	Lower limit	Surface    water	Duration	Frequency	Duration	Frequency
	group				_depth_				.
	ļ	ļ	Ft	Ft	Ft				ļ
1:		ļ			!!!				ļ
Udifluvents	В	ļ			!!!				ļ
		January	2.0-6.0				None	Brief	Frequent
		February	2.0-6.0				None	Brief	Frequent
		March	2.0-6.0				None	Brief	Frequent
	ļ	April	2.0-6.0				None	Brief	Frequent
	ļ	May	2.0-6.0				None	Brief	Frequent
	ļ	November	2.0-6.0				None	Brief	Frequent
		December	2.0-6.0	>6.0			None	Brief	Frequent
Fluvaquents	D D	 			 				
	ì	January	0.0	>6.0	i i		None	Brief	Frequent
	ì	February	0.0	>6.0	i i		None	Brief	Frequent
	ì	March	0.0	>6.0	i i		None	Brief	Frequent
	ì	April	0.0	>6.0	i i		None	Brief	Frequent
	ì	May	0.0	>6.0	i i		None	Brief	Frequent
	ì	June	0.0	>6.0	i i		None	Brief	Frequent
	ì	July	0.0	>6.0	i i		None	Brief	Frequent
	ì	August	0.0	>6.0	i i		None	Brief	Frequent
	ì	September	0.0	>6.0	i i		None	Brief	Frequent
	ì	October	0.0	>6.0	i i		None	Brief	Frequent
	i	November	0.0	>6.0	i i		None	Brief	Frequent
	İ	December	0.0	>6.0	i i		None	Brief	Frequent
2:									
z: Hamlin	В	 							
	Ì	January	3.0-6.0	>6.0	i i		None	Brief	Occasiona
	Ì	February	3.0-6.0	>6.0	i i		None	Brief	Occasiona
	Ì	March	3.0-6.0	>6.0	i i		None	Brief	Occasiona
	Ì	April	3.0-6.0	>6.0	i i		None	Brief	Occasiona
		May	3.0-6.0	>6.0			None	Brief	Occasiona
		November	3.0-6.0	>6.0			None	Brief	Occasiona
		December	3.0-6.0	>6.0			None	Brief	Occasiona
3:									
Tioga	В	İ	į		į į		į į		İ
	İ	January	3.0-6.0	>6.0	i i		None	Brief	Occasiona
	İ	February	3.0-6.0	>6.0	i i		None	Brief	Occasiona
	İ	March	3.0-6.0	>6.0	i i		None	Brief	Occasiona
	İ	April	3.0-6.0	>6.0	i i		None	Brief	Occasiona
	İ	May	3.0-6.0	>6.0	i i		None	Brief	Occasiona
	İ	November	3.0-6.0	>6.0	i i		None	Brief	Occasiona
	İ	December	3.0-6.0	>6.0	i i		None	Brief	Occasiona

Occasional

Occasional

Occasional

None

None

None

Brief

Brief

Brief

			Water	Water table		Ponding			oding
Map symbol and soil name	Hydro- logic group	Month	Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
4:	_				!!!				
Teel	В	   <b>-</b>			!!!		N	D	
		January	1.5-2.0				None	Brief	Occasional
		February	1.5-2.0				None	Brief Brief	Occasional   Occasional
		March	1.5-2.0				None	Brief Brief	Occasional
		April	1.5-2.0				None	Brief Brief	Occasional
		May   November	1.5-2.0				None None	Brief Brief	Occasional
		December	1.5-2.0		!!!		None	Brief Brief	Occasional
		December	1.5-2.0	>6.0			None	Briei	Occasional
5:									
Wayland	C/D	İ	j i		į į		į į		İ
	İ	January	0.0-0.5	>6.0	j j		None	Long	Frequent
	İ	February	0.0-0.5	>6.0	j j		None	Long	Frequent
	İ	March	0.0-0.5	>6.0	j j		None	Long	Frequent
	İ	April	0.0-0.5	>6.0	j j		None	Long	Frequent
	İ	May	0.0-0.5	>6.0	j j		None	Long	Frequent
	İ	June	0.0-0.5	>6.0	j j		None	Long	Frequent
		October	0.0-0.5	>6.0			None	Long	Frequent
		November	0.0-0.5	>6.0			None	Long	Frequent
		December	0.0-0.5	>6.0			None	Long	Frequent
6A:									
Wyalusing	D	İ	j		į į		į į		İ
		January	0.0-0.5	>6.0			None	Brief	Frequent
		February	0.0-0.5	>6.0			None	Brief	Frequent
		March	0.0-0.5	>6.0			None	Brief	Frequent
		April	0.0-0.5	>6.0			None	Brief	Frequent
		May	0.0-0.5	>6.0			None	Brief	Frequent
		November	0.0-0.5	>6.0			None	Brief	Frequent
		December	0.0-0.5	>6.0			None	Brief	Frequent
7A: Philo	   B	 							
111110	-	January	1.5-2.0	>6.0			None	Brief	Occasional
	1	February	1.5-2.0		i i		None	Brief	Occasional
		March	1.5-2.0				None	Brief	Occasional
		April	1.5-2.0				None	Brief	Occasional
		May	1.5-2.0				None	Brief	Occasional
		November	1.5-2.0				None	Brief	Occasional
	1	1	1		1 1				

8:

Middlebury-----

January

March

February

1.5-2.0 >6.0

1.5-2.0 >6.0 |1.5-2.0 >6.0

Table 24.-Water Features-Continued

Table 24.-Water Features-Continued

			Water	table		Ponding		Flooding	
Map symbol and soil name	Hydro- logic group	Month 	Upper   limit	Lower   limit 	Surface water depth	Duration	Frequency	Duration	Frequency
	i		Ft	Ft	Ft				
8:		April	1.5-2.0	>6.0			None	Brief	Occasional
Middlebury		May	1.5-2.0	>6.0			None	Brief	Occasional
		November	1.5-2.0	>6.0			None	Brief	Occasional
		December	1.5-2.0	>6.0 			None	Brief	Occasional
9:	_	ļ							ļ
Pawling	В	   <b>-</b>					N	D	011
		January	1.5-2.0				None	Brief Brief	Occasional
		February	1.5-2.0		!		None	Brief Brief	Occasional
		March	1.5-2.0	!			None None	Brief	Occasional Occasional
		April  May	1.5-2.0	!	!		None	Brief	Occasional
		November	1.5-2.0				None	Brief	Occasional
		December	1.5-2.0	!			None	Brief	Occasional
10:		 		 	 				
Atkins	D								
		January	0.0-0.5	1			None	Long	Frequent
		February	0.0-0.5				None	Long	Frequent
		March	0.0-0.5				None	Long	Frequent
		April	0.0-0.5	1			None	Long	Frequent
	ļ	May	0.0-0.5	1			None	Long	Frequent
	ļ	June	0.0-0.5	1			None	Long	Frequent
		October	0.0-0.5	!			None	Long	Frequent
		November	0.0-0.5	1			None	Long	Frequent
		December	0.0-0.5	>6.0 			None	Long	Frequent
11B,11C,11D,11E,11F:	_	į	į	į	į				į
Ischua	В	   Tamus asses	1 5 2 0	  1.7-3.3			None		None
		January	1	1.7-3.3			None		None
		February  March	•	1.7-3.3			None		None
		April	1	1.7-3.3			None		None
		May	1	1.7-3.3			None		None
		June					None		None
		July					None		None
		August					None		None
		September		i			None		None
	i	October		i			None		None
	i	November	1	1.7-3.3			None		None
	ļ	December	1.5-2.0	1			None		None
12B,12C:		 		 					
Franklinville	В	ļ			[				
		January	3.0-6.0				None		None
		February	3.0-6.0	1			None		None
		March	3.0-6.0	!			None		None
		April	3.0-6.0	>6.0			None		None

			Water table			Ponding	Flooding		
Map symbol	Hydro-	Month	Upper	Lower	Surface	Duration	Frequency	Duration	Frequency
and soil name	logic	İ	limit	limit	water		į į		İ
grou	group	İ	i i		depth		į į		İ
			Ft	Ft	Ft				
2B,12C:		  May	3.0-6.0	>6.0			None		None
ranklinville	İ	June	i i		i i		None		None
	İ	July	j j		i i		None		None
	ĺ	August	i i		i i		None		None

Map symbol	Hydro-	Month	Upper	Lower	Surface	Duration	Frequency	Duration	Frequency
and soil name	logic	į	limit	limit	water		i	İ	i
	group	İ	İ	İ	depth		İ	İ	İ
	i		Ft	Ft	Ft				
	i	İ	İ	İ	i i		İ		
12B,12C:	İ	May	3.0-6.0	>6.0	i i		None		None
Franklinville	İ	June	i	i	i i		None		None
	İ	July	i	i	i i		None		None
	İ	August	i	i	i i		None		None
	j	September	j	j	i i		None	i	None
	j	October	j	j	i i		None	i	None
	j	November	3.0-6.0	>6.0	i i		None	i	None
	j	December	3.0-6.0	>6.0	i i		None	i	None
	j	İ	İ	İ	i i		İ	İ	į
12D,12E:	Ì	į	j	İ	i i		İ	İ	j
Franklinville	В	İ	İ	İ	į į		İ	İ	İ
	Ì	January	i	j	i i		None		None
		February					None		None
		March					None		None
		April					None		None
	Ì	May	i	j	i i		None		None
	Ì	June	i	j	i i		None		None
	Ì	July	i	j	i i		None		None
	Ì	August	i	j	i i		None		None
	Ì	September	i	j	i i		None		None
	Ì	October	i	j	i i		None		None
	Ì	November	i	j	i i		None		None
	Ì	December	j	j	i i		None	i	None
	Ì	İ	İ	İ	į į		İ	İ	İ
14B,14C:	Ì	İ	İ	İ	į į		İ	İ	İ
Hornellsville	D	İ	İ	İ	į į		İ	İ	İ
	Ì	January	0.5-1.5	1.7-3.3	i i		None		None
	Ì	February	0.5-1.5	1.7-3.3	i i		None		None
	Ì	March	0.5-1.5	1.7-3.3	i i		None		None
	Ì	April	0.5-1.5	1.7-3.3	i i		None		None
	Ì	May	0.5-1.5	1.7-3.3	i i		None		None
	Ì	June	i	j	i i		None		None
	Ì	July	i	j	i i		None		None
		August					None		None
		September	i	j	j j		None	i	None
		October					None		None
	Ì	November	0.5-1.5	1.7-3.3	i i		None		None
		December	0.5-1.5	1.7-3.3			None		None
15B,15C,15D:					Į į				
Willdin	C				l İ				
		January	1.2-2.0	1.3-2.2	j j		None		None
		February	1.2-2.0	1.3-2.2	j j		None	i	None
	ĺ	March	1.2-2.0	1.3-2.2	i i		None	i	None
		April	1.2-2.0	1.3-2.2	j j		None	i	None
	ĺ	May	1.2-2.0	1.3-2.2	i i		None	i	None
	ĺ	June	i	j	i i		None	i	None
		July	i	i	i i		None		None

Table 24.-Water Features-Continued

			Water	table		Ponding	·	Flooding	
Map symbol and soil name	Hydro- logic group	Month   	Upper limit	Lower   limit 	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
IED 150 15D.				 			Name		Name
L5B,15C,15D: Willdin		August  September					None None		None None
WIIIdIII		October					None		None
		November	1	1.3-2.2			None		None
		December	1	1.3-2.2			None		None
	İ	İ			j j				
6A,16B,16C:	ļ	ļ	ļ	ļ	[ [				
Almond	C	ļ	ļ	!	!!!				ļ
	ļ	January	0.5-1.5				None		None
		February	0.5-1.5				None		None
		March	0.5-1.5				None		None
		April	0.5-1.5				None		None
		May	0.5-1.5				None		None
		June					None		None
		July					None		None
		August					None		None
	ļ	September					None		None
	ļ	October					None		None
	ļ	November	0.5-1.5	>6.0			None		None
		December	0.5-1.5	>6.0			None		None
7B,17C,17D,17E:		l I		 	 				
Salamanca	В	İ	İ	İ	i i		j i		
	İ	January	1.5-2.0	>6.0	j j		None		None
	İ	February	1.5-2.0	>6.0	j j		None		None
	İ	March	1.5-2.0	>6.0	j j		None		None
	İ	April	1.5-2.0	>6.0	j j		None		None
	İ	May	1.5-2.0	>6.0	j j		None		None
	İ	June	j	i	j j		None		None
	İ	July	j	i	j j		None		None
	İ	August	j	i	j j		None		None
	İ	September	j	i	j j		None		None
	İ	October	j	i	j j		None		None
	İ	November	1.5-2.0	>6.0	j j		None		None
	į	December	1.5-2.0	>6.0	j j		None		None
8A:		ļ							
	l B	!	-						
Pope	•	  January					None	Brief	Occasiona
		February					None	Brief	Occasiona
		March					None	Brief	Occasiona
		!					None	Brief	Occasiona
		April  May					None	Brief	Occasiona
		May   June					None	Prier	None
	1	Journe	_ <b></b>				1 MOTTE		MOTTE

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			Water	table		Ponding	·	Flooding	
Map symbol	Hydro-	Month	Upper	Lower	Surface	Duration	Frequency	Duration	Frequency
and soil name	logic		limit	limit	water     depth				
	group		Ft	Ft	Ft		.		-
	1		10	10					
.8A:	i	August			i i		None		None
Pope	İ	September			j j		None		None
		October					None		None
		November					None	Brief	Occasiona
		December					None	Brief	Occasiona
9A,19B:									
0lean	В				i i		i i		
	i -	January	1.5-2.0	>6.0	i i		None		None
	i	February	1.5-2.0	>6.0	i i		None		None
	İ	March	1.5-2.0	>6.0	i i		None		None
	i	April	1.5-2.0	>6.0	j j		None		None
	İ	May	1.5-2.0	>6.0	j j		None		None
	İ	June			j j		None		None
	İ	July			j j		None		None
		August					None		None
		September					None		None
		October					None		None
		November	1.5-2.0	>6.0			None		None
		December	1.5-2.0	>6.0			None		None
OA,20B,20C,20D:									
Unadilla	В	İ			i i		i i		İ
	i	January			i i		None		None
	İ	February			i i		None		None
	İ	March			i i		None		None
	i	April			j j		None		None
	i	May			j j		None		None
	i	June			j j		None		None
	İ	July			j j		None		None
	İ	August			j j		None		None
		September					None		None
		October					None		None
		November					None		None
		December					None		None
2A, 22B:									
Allard	В				j i		j i		
	i	January			i i		None		None
	i	February			i i		None		None
	i	March			i i		None		None
	İ	April			i i		None		None
	İ	May			i i		None		None
	İ	June			i i		None		None
	İ	July			j j		None		None
	İ	August			j j		None		None
	İ	September			i i		None		None

Table 24.-Water Features-Continued

Table 24.-Water Features-Continued

			Water	table	Ponding			Flooding	
Map symbol	Hydro-	Month	Upper	Lower	Surface	Duration	Frequency	Duration	Frequency
and soil name	logic		limit	limit	water				
	group				depth				
			Ft	Ft	Ft				
2A,22B:	 	  October					None	 	   None
Allard	İ	November	i		i i		None	i	None
	ļ	December					None		None
5A,25B,25C,25D,25E,25F:		 						 	 
Chenango	A		İ		j i				İ
		January					None		None
		February					None		None
		March					None		None
		April					None		None
		May					None		None
		June					None		None
		July					None		None
		August					None		None
		September					None		None
		October					None		None
		November					None		None
		December					None		None
6A,26B:		 						 	 
Chenango, fan	A								
		January	3.0-6.0	>6.0			None	Very brief	Rare
		February	3.0-6.0	>6.0			None	Very brief	Rare
		March	3.0-6.0	>6.0			None	Very brief	Rare
		April	3.0-6.0	>6.0			None	Very brief	Rare
		May	3.0-6.0	>6.0			None	Very brief	Rare
		June					None		None
		July					None		None
		August					None		None
		September					None		None
		October					None		None
		November	3.0-6.0	>6.0			None	Very brief	Rare
		December	3.0-6.0	>6.0			None	Very brief	Rare
7A,27B:		 						 	 
Castile	В				i				
		January	1.5-2.0	>6.0	j j		None	j	j
		February	1.5-2.0	>6.0	j j		None	j	j
		March	1.5-2.0	>6.0	j j		None	j	j
		April	1.5-2.0	>6.0	j j		None	j	j
		May	1.5-2.0	>6.0	j j		None	j	j
		November	1.5-2.0	>6.0	j j		None	j	j
	i	December	1.5-2.0	>6.0	i i		None	i	i

		1	Water	table		Ponding		Flooding	
Map symbol and soil name	Hydro- logic group	Month	Upper   limit	Lower limit	Surface   water   depth	Duration	Frequency	Duration	Frequency
		ļ	Ft	Ft	Ft				ļ
28A:	_								
Scio	В	!_							
		January	1.5-2.0	>6.0			None		None
		February	1.5-2.0	>6.0			None		None
		March	1.5-2.0	>6.0			None		None
		April	1.5-2.0	>6.0			None		None
		May	1.5-2.0	>6.0			None		None
		June					None		None
		July					None		None
		August					None		None
		September					None		None
		October					None		None
		November	1.5-2.0				None		None
		December	1.5-2.0	>6.0			None		None
			!!!						
29A, 29B, 29C, 29D, 29E:	ļ <u>-</u>		!!!						
Chenango	A	!_	!!!						
		January					None		None
		February					None		None
		March					None		None
		April					None		None
		May					None		None
		June					None		None
		July					None		None
		August					None		None
		September					None		None
		October					None		None
		November					None		None
		December					None		None
			!!!						
31B,31C:			!!!						
Collamer	С	!_							
		January	1.5-2.0				None		None
		February	1.5-2.0				None		None
		March	1.5-2.0				None		None
		April	1.5-2.0				None		None
		May	1.5-2.0	>6.0			None		None
	1	June					None		None
	1	July					None		None
	1	August					None		None
	1	September					None		None
	1	October					None		None
	1	November	1.5-2.0	>6.0			None		None
		December	1.5-2.0	>6.0			None		None

Table 24.-Water Features-Continued

Table 24.-Water Features-Continued

			Water	table		Ponding		Flooding	
Map symbol and soil name	Hydro-  logic  group	Month   	Upper   limit 	Lower   limit 	Surface    water     depth	Duration	Frequency   	Duration	Frequency
			Ft	Ft	Ft		ii		`
2A,32B:	İ	İ	j	İ	i i		i i		İ
Churchville	D	İ	j	j	i i		i i		İ
	İ	January	0.5-1.5	>6.0	i i		None		None
	İ	February	0.5-1.5	>6.0	i i		None		None
	İ	March	0.5-1.5	>6.0	i i		None		None
	İ	April	0.5-1.5	>6.0	i i		None		None
	İ	May	0.5-1.5	>6.0	i i		None		None
	İ	June	j	j	i i		None		None
	İ	July	j	j	i i		None		None
	İ	August	j	j	i i		None		None
	İ	September	j	i	i i		None		None
	İ	October	j	i	i i		None		None
	İ	November	0.5-1.5	>6.0	i i		None		None
	į	December	0.5-1.5	>6.0			None		None
BA:				 	 				
Wallington	C								
		January	0.5-1.5	1.0-2.0			None		None
		February	0.5-1.5	1.0-2.0			None		None
		March	0.5-1.5	1.0-2.0			None		None
		April	0.5-1.5	1.0-2.0			None		None
		May	0.5-1.5	1.0-2.0			None		None
		June					None		None
		July					None		None
		August					None		None
		September					None		None
		October					None		None
		November	0.5-1.5	1.0-2.0			None		None
		December	0.5-1.5	1.0-2.0			None		None
1:				 					
Getzville	D								
		January	0.0-0.5	1			None		None
		February	0.0-0.5	1			None		None
		March	0.0-0.5	1			None		None
		April	0.0-0.5	1			None		None
		May	0.0-0.5	1			None		None
		June	0.0-0.5	!			None		None
		July					None		None
		August					None		None
		September					None		None
		October					None		None
		November	0.0-0.5	1			None		None
	1	December	0.0-0.5	>6.0			None		None

			Water	table	Ponding			Flooding	
Map symbol and soil name	Hydro- logic group	Month	Upper     limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
253 25D 25G			Ft	Ft	Ft				
35A,35B,35C: Rhinebeck	.   .   D								
RIIIIebeck	ין י	   Tames and a	0.5-1.5	>6.0			None		None
	1	January		>6.0	!!!		None		None
	-	February  March	0.5-1.5	>6.0			None		None
	1	April	0.5-1.5	>6.0			None		None
	1	May	0.5-1.5	>6.0			None		None
	1	May   June		>0.U			None		None
	1	July					None		None
	1	! -					None		None
	1	August					None		None
	1	September  October					None		None
	1	November	1 1	>6.0	!!!		None		None
	1	December	0.5-1.5	>6.0			None		!
36:	1	December	0.5-1.5	>0.0			None		None
	_		!!!		!!!				
Canadice	- D	   <b>T</b>			!!!		N		
	!	January	0.0-1.0	>6.0			None		None
	!	February	0.0-1.0	>6.0			None		None
	-	March	0.0-1.0	>6.0			None		None
	-	April	0.0-1.0	>6.0			None		None
	-	May	0.0-1.0	>6.0			None		None
	1	June					None		None
	1	July					None		None
	ļ	August					None		None
	ļ	September					None		None
	ļ	October					None		None
	ļ	November	0.0-1.0	>6.0			None		None
		December	0.0-1.0	>6.0			None		None
7A,37B:		] 							
Tonawanda		i	i i		i i		i		i
		January	0.5-1.5	>6.0	i i		None		None
	i	February	0.5-1.5	>6.0			None		None
	i	March	0.5-1.5	>6.0			None		None
	i	April	0.5-1.5	>6.0			None		None
	ł	May	0.5-1.5	>6.0			None		None
		June					None		None
		July					None		None
		August					None		None
		September					None		None
		October					None		None
		November	0.5-1.5	>6.0			None		None
		December	0.5-1.5	>6.0			None		None
	1	pecemper	10.2-1.2	<b>&gt;0.0</b>			MOTTE		None

Table 24.-Water Features-Continued

Table 24.-Water Features-Continued

			Water	table		Ponding		Flooding		
Map symbol and soil name	Hydro-  logic  group	Month   	Upper   limit	Lower   limit 	Surface    water   depth	Duration	Frequency     	Duration	Frequency	
			Ft	Ft	Ft				·	
8A,38B:	İ	İ	i	j	j j		i i		i	
Niagara	c	İ	i	i	į į		i i		İ	
-	İ	January	0.5-1.5	>6.0	j j		None		None	
	İ	February	0.5-1.5	>6.0	j j		None		None	
	İ	March	0.5-1.5	>6.0	j j		None		None	
	İ	April	0.5-1.5	>6.0	j j		None		None	
	İ	May	0.5-1.5	>6.0	j j		None		None	
	İ	June	j	j	j j		None		None	
	i	July	j	j	j j		None		None	
	İ	August	j	i	j j		None		None	
	İ	September	j	i	j j		None		None	
	İ	October	j	i	j j		None		None	
	İ	November	0.5-1.5	>6.0	j j		None		None	
	İ	December	0.5-1.5	>6.0	j j		None		None	
9A:		 		 						
A: Halsey	C/D	 		 						
	İ	January	0.0-0.5	>6.0	0.0-0.5	Long	Frequent		None	
	İ	February	0.0-0.5	>6.0	0.0-0.5	Long	Frequent		None	
	İ	March	0.0-0.5	>6.0	0.0-0.5	Long	Frequent		None	
	İ	April	0.0-0.5	>6.0	0.0-0.5	Long	Frequent		None	
	İ	May	0.0-0.5	>6.0	0.0-0.5	Long	Frequent		None	
	İ	June	0.0-0.5	>6.0	j j		None		None	
	İ	July	j	j	j j		None		None	
	İ	August		j	j j		None		None	
	İ	September	0.0-0.5	>6.0	j j		None		None	
	İ	October	0.0-0.5	>6.0	0.0-0.5	Long	Frequent		None	
	İ	November	0.0-0.5	>6.0	0.0-0.5	Long	Frequent		None	
	į	December	0.0-0.5	>6.0	0.0-0.5	Long	Frequent		None	
OA,40B,40C:		 		 	 					
Williamson	c	İ	i	İ	i i		i		i	
		January	1.2-1.8	1.2-2.0	i i		None		None	
	i	February		1.2-2.0			None		None	
	i	March		1.2-2.0			None		None	
	i	April	1.2-1.8	1.2-2.0	i i		None		None	
	i	May		1.2-2.0	i i		None		None	
	İ	June	j	i	j j		None		None	
	i	July		i	i i		None		None	
	i	August		i	i i		None		None	
	i	September			i i		None		None	
	i	October			i i		None		None	
	i	November	1.2-1.8	1.2-2.0	i i		None		None	
	1	December	1.2-1.8	!	i i		None		None	

	1		Water	table	Ponding			Flooding	
Map symbol and soil name	Hydro-	Month	Upper	Lower	Surface water	Duration	Frequency	Duration	Frequenc
	group	İ	İ	İ	depth		į į		Ì
	i		Ft	Ft	Ft				
1A,41B:	İ	İ	i	İ	i i		i i		İ
Barcelona	c	İ	i	i	i i		i i		İ
	İ	January	0.5-1.5	3.3-5.0	i i		None		None
	İ	February	!	3.3-5.0	i i		None		None
	İ	March	,	3.3-5.0	i i		None		None
	İ	April	0.5-1.5	3.3-5.0	i i		None		None
	İ	May	0.5-1.5	3.3-5.0	i i		None		None
	İ	June	i	i	i i		None		None
	İ	July	i	i	i i		None		None
	İ	August	i	i	i i		None		None
	İ	September	i	i	i i		None		None
	İ	October	i	i	i i		None		None
	i	November	0.5-1.5	3.3-5.0	i i		None		None
	i	December	1	3.3-5.0	i i		None		None
	İ	İ	i	i	i i		i i		İ
2A,42B:	İ	İ	i	İ	i i		i i		İ
Elnora	В	İ	i	i	i i		i i		İ
	i	January	1.5-2.0	>6.0	i i		None		None
	i	February	1.5-2.0	!	i i		None		None
	i	March	1.5-2.0	!	i i		None		None
	i	April	1.5-2.0	1	i i		None		None
	i	May	1.5-2.0	1	i i		None		None
	i	June			i i		None		None
	i	July	i	i	i i		None		None
	i	August	i	i	i i		None		None
	i	September	i	i	i i		None		None
	i	October	i	i	i i		None		None
	İ	November	1.5-2.0	>6.0	i i		None		None
	İ	December	1.5-2.0	>6.0	i i		None		None
	i	İ		İ	i i				
3:	İ	İ	i	i	i i		i i		İ
Canandaigua, silt loam	D	İ	i	i	i i		i i		İ
5 .	İ	January	0.0-0.5	>6.0	0.0-0.5	Long	Frequent		None
	İ	February	0.0-0.5	>6.0	0.0-0.5	Long	Frequent		None
	İ	March	0.0-0.5	>6.0	0.0-0.5	Long	Frequent		None
	İ	April	0.0-0.5	>6.0	0.0-0.5	Long	Frequent		None
	İ	May	0.0-0.5	>6.0	0.0-0.5	Long	Frequent		None
	İ	June	0.0-0.5	>6.0	i i		None		None
	i	July			i i		None		None
	İ	August		i	i i		None		None
	i	September	0.0-0.5	>6.0	i i		None		None
	i	October	0.0-0.5		0.0-0.5	Long	Frequent		None
	i	November	0.0-0.5		0.0-0.5	Long	Frequent		None
	!	December	0.0-0.5	1	0.0-0.5	Long	Frequent		None

Table 24.-Water Features-Continued

Table 24.-Water Features-Continued

			Water table		Ponding			Flooding	
Map symbol and soil name	Hydro- logic group	Month	Upper limit	Lower limit	Surface   water   depth	Duration	Frequency	Duration	Frequency
	<u>5</u>		Ft	Ft	Ft				
4:		İ				İ	i i		i
Canandaigua, mucky silt	İ	İ	i		i	İ	i i		i
loam	D	İ	j i		i	İ	i i		i
	İ	January	0.0	>6.0	0.0-1.0	Very long	Frequent		None
	İ	February	0.0	>6.0	0.0-1.0	Very long	Frequent		None
	İ	March	0.0	>6.0	0.0-1.0	Very long	Frequent		None
	İ	April	0.0	>6.0	0.0-1.0	Very long	Frequent		None
	İ	May	0.0	>6.0	0.0-1.0	Very long	Frequent		None
	İ	June	0.0	>6.0	0.0-0.5	Long	Occasional		None
	İ	July	0.0	>6.0	0.0-0.5	Long	Occasional		None
	İ	August	0.0	>6.0	0.0-0.5	Long	Occasional		None
	İ	September	0.0	>6.0	0.0-0.5	! -	Occasional		None
	İ	October	0.0	>6.0	0.0-1.0	Very long	Frequent		None
	İ	November	0.0	>6.0	1	Very long	Frequent		None
		December	0.0	>6.0		Very long	Frequent		None
5:		İ	i i		i	İ	i i		i
Canandaigua, acid		i			i	i	i i		i
substratum	ם	i			i	i			i
5 ab 5 c 2 a c am	-	January	0.0-0.5	>6.0	0.0-0.5	Long	Frequent		None
		February	0.0-0.5		0.0-0.5	Long	Frequent		None
		March	0.0-0.5		0.0-0.5	Long	Frequent		None
	 	April	0.0-0.5		0.0-0.5	Long	Frequent		None
		May	0.0-0.5		0.0-0.5	Long	Frequent		None
		June	0.0-0.5			Hong	None		None
		July				 	None		None
		: -				 	None		None
		August	! !			 	None		None
		September  October	0.0-0.5		0.0-0.5	!	1 1		None
		November	0.0-0.5		0.0-0.5	Long	Frequent		!
		December	0.0-0.5		!	Long	Frequent		None
		December	0.0-0.5	>6.0	0.0-0.5	Long	Frequent		None
<u>-</u>			!		1	ļ			
6: Swormville			!		1	ļ			
Swormville	C	   <b></b>			1	ļ	N		
		January	0.5-1.5				None		None
		February	0.5-1.5				None		None
		March	0.5-1.5				None		None
		April	0.5-1.5				None		None
		May	0.5-1.5				None		None
	ļ	June					None		None
		July					None		None
		August					None		None
	ļ	September					None		None
	ļ	October					None		None
		November	0.5-1.5				None		None
	1	December	0.5-1.5	>6.0			None		None

	I		Water table		Ponding			Flooding		
Map symbol	Hydro-	Month	Upper	Lower	Surface	Duration	Frequency	Duration	Frequenc	
and soil name	logic		limit	limit	water					
	group				depth				1	
			Ft	Ft	Ft					
7A:										
Minoa	C									
		January	0.5-1.5	>6.0			None		None	
		February	0.5-1.5	>6.0			None		None	
		March	0.5-1.5	>6.0			None		None	
		April	0.5-1.5	>6.0			None		None	
		May	0.5-1.5	>6.0			None		None	
		June					None		None	
		July					None		None	
		August					None		None	
		September					None		None	
		October					None		None	
		November	0.5-1.5	>6.0			None		None	
		December	0.5-1.5	>6.0			None		None	
8A,48B,48C:		<u> </u>								
Colonie	A	<u> </u>								
		January					None		None	
		February					None		None	
		March					None		None	
		April					None		None	
		May					None		None	
		June					None		None	
		July					None		None	
		August					None		None	
		September					None		None	
	ļ	October					None		None	
	ļ	November					None		None	
	ļ	December					None		None	
		ļ								
9A:	ļ	!			!!!				ļ	
Red Hook	C	!			!!!				ļ	
	ļ	January	0.5-1.5				None		None	
	ļ	February	0.5-1.5	>6.0			None		None	
		March	0.5-1.5	>6.0			None		None	
		April	0.5-1.5				None		None	
		May	0.5-1.5				None		None	
		June					None		None	
	!	July					None		None	
	!	August					None		None	
		September					None		None	
		October					None		None	
	!	November  December	0.5-1.5	>6.0 >6.0			None		None	
							None		None	

Table 24.-Water Features-Continued

Table 24.-Water Features-Continued

			Water table			Ponding		Flooding		
Map symbol and soil name	Hydro- logic group	Month   	Upper   limit	Lower   limit	Surface     water     depth	Duration	Frequency	Duration	Frequency	
	JF		Ft	Ft	Ft				·	
0A,50B,50C:	ì	İ		İ	i i		i i		İ	
Canaseraga	c	İ	İ	İ	i i		i i		İ	
<b>.</b>	ì	January	1.2-1.9	1.5-2.8	i i		None		None	
	ì	February	1.2-1.9	1.5-2.8	i i		None		None	
	ì	March		1.5-2.8	i i		None		None	
	ì	April		1.5-2.8	i i		None		None	
	ì	May		1.5-2.8	i i		None		None	
	ì	June		i	i i		None		None	
	ì	July		i	i i		None		None	
	ì	August		i	i i		None		None	
	ì	September		i	i i		None		None	
	ì	October		i	i i		None		None	
	i	November	1.2-1.9	1.5-2.8	i i		None		None	
	į	December	1	1.5-2.8	ļ ļ		None		None	
1B,51C:		 		 	 					
Chadakoin	В									
		January	2.0-6.0	>6.0			None		None	
		February	2.0-6.0	>6.0			None		None	
		March	2.0-6.0	>6.0			None		None	
	Ì	April	2.0-6.0	>6.0	i i		None		None	
	Ì	May	2.0-6.0	>6.0	i i		None		None	
	Ì	June		j	i i		None		None	
	Ì	July		j	i i		None		None	
	İ	August	i	j	i i		None		None	
	İ	September		j	i i		None		None	
	İ	October	j	j	i i		None		None	
	İ	November	2.0-6.0	>6.0	i i		None		None	
	į	December	2.0-6.0	>6.0	ļ ļ		None		None	
1D,51E,51F:		 		 	 					
Chadakoin	В			ļ						
		January					None		None	
		February					None		None	
		March					None		None	
		April					None		None	
		May					None		None	
		June					None		None	
		July					None		None	
		August					None		None	
		September					None		None	
		October		j	j j		None		None	
		November			j j		None		None	
	i	December	i	i	i i		None		None	

		l	Water table		I	Ponding	Floo	Flooding	
Map symbol and soil name	Hydro- logic group	Month	Upper limit	Lower   limit 	Surface   water   depth	Duration	Frequency	Duration	Frequenc
			Ft	Ft	Ft				
2B,52C,52D,52E,52F:			[						
Valois	В		ļ	ļ	!!				ļ
		January					None		None
	!	February					None		None
		March					None		None
		April					None		None
		May					None		None
		June	 	 	 		None		None None
		July		 	 		None		None
		August September		 	 		None		None
		October		 	 		None		None
		November		 			None		None
	}	December		 			None		None
		December		 			None		None
3C:		 	] 	 					
Valois	В								
. 41015	-	January	i	 	i i		None		None
	i	February	i	i	i i		None		None
	i	March	i	i	i i		None		None
	i	April	i	i	i i		None		None
	i	May	i	i	i i		None		None
	i	June	i	i	i i		None		None
	i	July	i	i	i i		None		None
	i	August		i	i i		None		None
	i	September		i	i i		None		None
	İ	October	i	i	i i		None		None
	İ	November	i	i	i i		None		None
	İ	December	j	i	i i		None		None
	İ	İ	j	j	į į		į į		İ
/olusia	C								
	ļ	January		0.8-1.8			None		None
	ļ	February	!	0.8-1.8			None		None
		March	!	0.8-1.8			None		None
		April		0.8-1.8			None		None
		May	1	0.8-1.8			None		None
		June					None		None
		July					None		None
		August					None		None
	!	September					None		None
	!	October					None		None
	!	November		0.8-1.8			None		None
		December	0.5-1.5	0.8-1.8			None		None
s 4 i		 							}
Mardin	C	   Tamus	1 1 2 2				None		N
		January		1.2-2.2			None		None
		February		1.2-2.2			None		None
		March		1.2-2.2			None		None
	1	April	. ⊥ . ⊥ − ∠ . ∪	1 4 - 4 - 4 - 4			None		None

Table 24.-Water Features-Continued

Table 24.-Water Features-Continued

			Water	Water table		Ponding	Flooding		
Map symbol and soil name	Hydro-  logic  group	Month	Upper limit	Lower   limit	Surface   water   depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
Mardin		June					None		None
		July					None		None
		August					None		None
		September					None		None
		October					None		None
		November	1	1.2-2.2			None		None
		December	1.1-2.0	1.2-2.2			None		None
5A,55B,55C:				 					
Darien	C	İ	İ	İ	i i		i i		İ
	İ	January	0.5-1.5	>6.0	i i		None		None
	Ì	February	0.5-1.5	>6.0	i i		None		None
	İ	March	0.5-1.5	>6.0	i i		None		None
	İ	April	0.5-1.5	>6.0	i i		None		None
	İ	May	0.5-1.5	>6.0	i i		None		None
	İ	June	j	j	i i		None		None
	Ì	July			i i		None		None
	İ	August	j	j	i i		None		None
	İ	September	j	j	i i		None		None
	İ	October	j	j	i i		None		None
	İ	November	0.5-1.5	>6.0	i i		None		None
	İ	December	0.5-1.5	>6.0			None		None
6B,56C,56D:				 	 				
Chautauqua	C	İ	İ	İ	į į		į į		İ
	Ì	January	1.5-2.0	>6.0	i i		None		None
	Ì	February	1.5-2.0	>6.0	i i		None		None
	Ì	March	1.5-2.0	>6.0	i i		None		None
	Ì	April	1.5-2.0	>6.0	i i		None		None
	Ì	May	1.5-2.0	>6.0	i i		None		None
	Ì	June			i i		None		None
	Ì	July			i i		None		None
	Ì	August			i i		None		None
		September					None		None
		October					None		None
		November	1.5-2.0	>6.0			None		None
	ļ	December	1.5-2.0	>6.0	ļ ļ		None		None
7A,57B,57C:		 		 	 				
Busti	C				l İ		i		
		January	0.5-1.5	>6.0	j j		None		None
		February	0.5-1.5	>6.0	j j		None		None
		March	0.5-1.5	>6.0	j j		None		None
		April	0.5-1.5	>6.0	j j		None		None
		May	0.5-1.5	>6.0	j j		None		None
		June		i	i i		None		None

	1		Water table		1	Ponding	Flooding		
Map symbol and soil name	Hydro-  logic  group	Month	Upper limit	Lower limit	Surface   water   depth	Duration	Frequency	Duration	Frequenc
	<u>5</u>		Ft	Ft	Ft		·		
57A,57B,57C:	ì	July		i	i i		None		None
Busti	İ	August	i	i	i i		None		None
	İ	September	i		i i		None		None
	İ	October	i	i	i i		None		None
	İ	November	0.5-1.5	>6.0	i i		None		None
	ļ	December	0.5-1.5	>6.0	ļ ļ		None		None
8B,58C:				 					
Rushford	В								
		January	1.1-2.0	1.2-2.3			None		None
		February	!	1.2-2.3			None		None
		March	!	1.2-2.3			None		None
		April	•	1.2-2.3			None		None
		May	!	1.2-2.3			None		None
		June					None		None
	ļ	July					None		None
	ļ	August					None		None
	ļ	September					None		None
		October					None		None
	ļ	November	1	1.2-2.3			None		None
		December	1.1-2.0	1.2-2.3	 		None		None
9B,59C,59D:	ļ	į			į į				
Yorkshire	C	_							
	ļ	January	1.2-2.0				None		None
	ļ	February	1.2-2.0	!			None		None
		March	•	1.3-2.5			None		None
		April	•	1.3-2.5			None		None
		May		1.3-2.5			None		None
		June					None		None
		July					None		None
		August		 	 		None		None
		September		 	 		None		None
		October  November	1	ı	 		None None		None None
		December	!	1.3-2.5  1.3-2.5	 		None		None
OA,60B,60C,60D:				 					
Napoli	c								
		January	0.5-1.5	1.0-2.3			None		None
	1	February	•	1.0-2.3	 		None		None
		March	1	1.0-2.3	i i		None		None
		April	1	1.0-2.3			None		None
		May	1	1.0-2.3	i i		None		None
		June			i i		None		None
		July		 	i i		None		None
		August			i i		None		None

Table 24.-Water Features-Continued

Table 24.-Water Features-Continued

			Water	table		Ponding		Floo	ding
Map symbol and soil name	Hydro- logic group	Month   	Upper limit	Lower limit	Surface     water   depth	Duration	Frequency	Duration	Frequenc
			Ft	Ft	Ft				
OA,60B,60C,60D:		September		i	i i		None		None
Napoli	 	October	i	i	i i		None		None
	! 	November	1	1.0-2.3	i i		None		None
	 	December	1	1.0-2.3			None		None
		i		i	i i				
1B,61C,61D,61E,61F:		İ	İ	İ	i i				İ
Schuyler	В	İ	İ	İ	i i		į i		İ
-	İ	January	1.5-2.0	>6.0	j j		None		None
	İ	February	1.5-2.0		i i		None		None
		March	1.5-2.0	1	i i		None		None
		April	1.5-2.0	1	i i		None		None
	 	May	1.5-2.0	>6.0	i i		None		None
	! 	June			i i		None		None
	 	July		i	i i		None		None
	 	August		 	i i		None		None
	l I	September		 	i i		None		None
	 	October		 			None		None
	 	November	1.5-2.0	>6.0			None		None
	 	December	1.5-2.0				None		None
	 	December	1	-0.0			None		None
2B,62C,62D:	 	}	l	! !					}
Mardin	c	}		! !					}
Marain	•	January	1 1-2 0	1.2-2.2			None		None
	 	February	1	1.2-2.2			None		None
	l I	March	1	1.2-2.2			None		None
	l I	April	!	1.2-2.2			None		None
	 	! -	!	1.2-2.2	 		None		None
	 	May	1.1-2.0	1.2-2.2			None		None
	 	June		 			!		1
	 	July	!	 	!!		None		None
	 	August		 			None		None
	 	September		 			None		None
	l	October	1	I			None		None
		November		1.2-2.2	!!!		None		None
	l I	December	1.1-2.0	1.2-2.2			None		None
2D 62G 62D	l I			ļ	!!!				-
3B,63C,63D:		}		ļ	!!				-
Langford	С	<u> </u>			!!!		ļ <u>.</u>		
		January	1	1.2-2.3			None		None
		February	!	1.2-2.3			None		None
		March	!	1.2-2.3			None		None
		April		1.2-2.3			None		None
		May	1	1.2-2.3			None		None
		June					None		None
		July					None		None
		August					None		None
		September					None		None
		October					None		None
		November	1	1.2-2.3			None		None
		December	1.2-2.0	1.2-2.3			None		None

	1	1	Water	table	1	Ponding		Floc	ding
Map symbol and soil name	Hydro- logic group	Month	Upper limit	Lower   limit	Surface   water   depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
54C:		ļ							
Mardin	C	ļ	ļ						ļ
		January	,	1.2-2.2			None		None
		February	1	1.2-2.2			None		None
		March	!	1.2-2.2			None		None
		April	!	1.2-2.2			None		None
		May	!	1.2-2.2			None		None
		June					None		None
		July					None		None
		August					None		None
		September					None		None
		October					None		None
		November	1	1.2-2.2			None		None
		December	1.1-2.0	1.2-2.2			None		None
6B:		İ		 	 				
Volusia	C								
	İ	January	0.5-1.5	0.8-1.8	i i		None		None
	İ	February	0.5-1.5	0.8-1.8	i i		None		None
	İ	March	0.5-1.5	0.8-1.8	i i		None		None
	İ	April	0.5-1.5	0.8-1.8	i i		None		None
	İ	May	0.5-1.5	0.8-1.8	i i		None		None
	İ	June	j		i i		None		None
	İ	July	j		i i		None		None
	j	August	j	j	i i		None		None
	j	September	j	j	i i		None		None
	j	October	j	j	i i		None		None
	j	November	0.5-1.5	0.8-1.8	i i		None		None
	į	December	0.5-1.5	0.8-1.8	ļ ļ		None		None
7A,67B:		 		 	 				
Dalton	C	İ	İ	į	j i		j i		İ
	İ	January	0.5-1.5	1.0-1.8	i i		None		None
	İ	February	0.5-1.5	1.0-1.8	i i		None		None
	İ	March	,	1.0-1.8	i i		None		None
	İ	April	0.5-1.5	1.0-1.8	i i		None		None
	İ	May	0.5-1.5	1.0-1.8	i i		None		None
	İ	June	j		i i		None		None
	İ	July			i i		None		None
	İ	August	i		i i		None		None
	i	September			i i		None		None
	İ	October			i i		None		None
	İ	November	1	1.0-1.8	i i		None		None
	!	December	0.5-1.5	!	i i		None		None

Table 24.-Water Features-Continued

Table 24.-Water Features-Continued

			Water	table		Ponding		Floc	ding
Map symbol and soil name	Hydro- logic group	Month   	Upper   limit	Lower   limit	Surface   water   depth	Duration	Frequency	Duration	Frequency
	J		Ft	Ft	Ft				\ <u></u>
8A,68B,68C:	İ	İ		İ	i i		i i		İ
Volusia	i c	İ	İ	İ	i i		i i		i
		January	0.5-1.5	0.8-1.8	i i		None		None
	İ	February	0.5-1.5	0.8-1.8	i i		None		None
	İ	March	0.5-1.5	0.8-1.8	j j		None		None
	İ	April	0.5-1.5	0.8-1.8	j j		None		None
	İ	May	0.5-1.5	0.8-1.8	j j		None		None
	İ	June	j	j	j j		None		None
	İ	July	j	j	j j		None		None
	İ	August	j	j	j j		None		None
	İ	September	j	j	j j		None		None
	İ	October	j	i	i i		None		None
	İ	November	0.5-1.5	0.8-1.8	j j		None		None
	ļ	December	0.5-1.5	0.8-1.8	ļ ļ		None		None
9A,69B,69C:		 		 	 				
Erie	C	İ	İ	İ	į į		i i		İ
	İ	January	0.5-1.5	0.8-1.7	j j		None		None
	İ	February	0.5-1.5	0.8-1.7	j j		None		None
	İ	March	0.5-1.5	0.8-1.7	j j		None		None
	İ	April	0.5-1.5	0.8-1.7	j j		None		None
	İ	May	0.5-1.5	0.8-1.7	j j		None		None
	İ	June	j	j	j j		None		None
	İ	July	j	j	i i		None		None
	İ	August	j	j	j j		None		None
	İ	September	j	j	j j		None		None
	İ	October	j	j	i i		None		None
	İ	November	0.5-1.5	0.8-1.7	j j		None		None
	İ	December	0.5-1.5	0.8-1.7	ļ ļ		None		None
1E,71F:		 		 					
Mongaup	C								
		January					None		None
		February					None		None
		March					None		None
		April					None		None
		May					None		None
		June					None		None
		July					None		None
		August					None		None
		September	j	j	j j		None		None
		October	j	j	j j		None		None
		November	j	j	j j		None		None
	1	December	j	j	i i		None		None

			Water	table		Ponding		Floo	ding
Map symbol and soil name	Hydro- logic group	Month	Upper limit	Lower   limit 	Surface water depth	Duration	Frequency	Duration	Frequency
		ļ	Ft	Ft	Ft				
72B,72C,72D,72E,72F:	_				!!!				
Towerville	В	!_			!!!				
		January	,	1.7-3.3			None		None
		February	,	1.7-3.3			None		None
		March	1	1.7-3.3			None		None
		April	!	1.7-3.3	: :		None		None
		May					None		None
2B,72C,72D,72E,72F:		June					None		None
Towerville	ļ	July					None		None
	ļ	August					None		None
	ļ	September					None		None
		October					None		None
		November					None		None
		December	1.5-2.0	1.7-3.3			None		None
3B,73C:		l I							
Gretor	c	ì	i	i	i i		i i		ì
010001		January	0 5-1 5	1.7-3.3	i i		None		None
	ŀ	February	1	1.7-3.3			None		None
	1	March		1.7-3.3			None		None
		April		1.7-3.3			None		None
		May	1	1.7-3.3			None		None
	-	June					None		None
	-	!					None		None
		July					None		None
	!	August	!		!!!		!		!
	!	September		!			None		None
		October					None None		None
		November   December	1	1.7-3.3			None	 	None None
4:					İ				
Ashville	ם	i	i	İ	i i		i i		i
	i	January	0.0-0.5	>6.0	i i		None		None
	i	February	0.0-0.5	1	i i		None		None
	i	March	0.0-0.5	1	i i		None		None
	i	April	0.0-0.5	!	i i		None		None
		May	0.0-0.5	1			None		None
		June					None		None
		July					None		None
		August					None		None
							None		None
		September  October					None		None
		November	0.0-0.5	I			None		!
			1	1	!!!		!		None
	1	December	0.0-0.5	∪. ە< ∣			None		None

Table 24.-Water Features-Continued

Table 24.-Water Features-Continued

			Water	table		Ponding		Floo	ding
Map symbol and soil name	Hydro- logic group	Month   	Upper   limit 	Lower   limit 	Surface   water   depth	Duration   	Frequency	Duration	Frequency
	<del></del>		Ft	Ft	Ft				i
5:	İ	İ	İ	İ	İ	İ	į į		İ
Alden	D								
		January	0.0	>6.0	0.0-1.0	Very long	Frequent		None
		February	0.0	>6.0	0.0-1.0	Very long	Frequent		None
		March	0.0	>6.0	0.0-1.0	Very long	Frequent		None
		April	0.0	>6.0	0.0-1.0	Very long	Frequent		None
		May	0.0	>6.0	0.0-1.0	Very long	Frequent		None
		June	0.0	>6.0	0.0-1.0	Very long	Frequent		None
		July	0.0	>6.0	0.0-0.5	Long	Occasional		None
		August	0.0	>6.0	0.0-0.5	Long	Occasional		None
		September	0.0	>6.0	0.0-1.0	Very long	Frequent		None
	İ	October	0.0	>6.0	0.0-1.0	Very long	Frequent		None
		November	0.0	>6.0	0.0-1.0	Very long	Frequent		None
	ļ	December	0.0	>6.0	0.0-1.0	Very long	Frequent		None
6A,76B,76C:		 		 	 	 			
Orpark	C	İ	İ	j	İ	İ	i i		İ
_	İ	January	0.5-1.5	1.7-3.3	i	j	None		None
	İ	February	0.5-1.5	1.7-3.3	i	j	None		None
	İ	March	0.5-1.5	1.7-3.3	j	j	None		None
	İ	April	0.5-1.5	1.7-3.3	j	j	None		None
	İ	May	0.5-1.5	1.7-3.3	i	j	None		None
	İ	June	i	j	i	j	None		None
	İ	July	j	j	j	j	None		None
	İ	August	j	j	j	j	None		None
	İ	September	j	j	j	j	None		None
	İ	October	i	j	i	j	None		None
	İ	November	0.5-1.5	1.7-3.3	j	j	None		None
	ļ	December	0.5-1.5	1.7-3.3	ļ	ļ	None		None
7A:		 		 	 	 			
Chippewa	D	İ	İ	j	İ	İ	i i		İ
	İ	January	0.0-0.5	0.7-1.7	j	j	None		None
	İ	February	0.0-0.5	0.7-1.7	j	j	None		None
	İ	March	0.0-0.5	0.7-1.7	j	j	None		None
	İ	April	0.0-0.5	0.7-1.7	j	j	None		None
	İ	May	0.0-0.5	0.7-1.7		j	None		None
	İ	June	i	i	j	j	None		None
	İ	July	i	i	j	j	None		None
	İ	August		j		j	None		None
	İ	September	i	i	j	j	None		None
	İ	October	i	i	j	j	None		None
	İ	November	0.0-0.5	0.7-1.7	j	j	None		None
	İ	December	0.0-0.5	0.7-1.7	i	j	None		None

		1	Water	table	I	Ponding		Floc	ding
Map symbol and soil name	Hydro- logic group	Month 	Upper limit	Lower   limit	Surface   water   depth	Duration	Frequency	Duration	Frequenc
			Ft	Ft	Ft				
8A,78B,78C,78D:	İ	İ	İ	İ	į į		j j		İ
Hornell	D								
		January	0.5-1.5	1.7-3.3			None		None
		February		1.7-3.3			None		None
		March	1	1.7-3.3			None		None
		April	1	1.7-3.3			None		None
	ļ	May	:	1.7-3.3			None		None
	ļ	June					None		None
	ļ	July					None		None
	ļ	August					None		None
		September					None		None
		October					None		None
		November	1	1.7-3.3			None		None
		December	0.5-1.5	1.7-3.3			None		None
8F: Hornell	     D	   		   	 				
	-	January	0.5-1.5	1.7-3.3			None		None
		February	!	1.7-3.3			None		None
	i	March		1.7-3.3	i i		None		None
	i	April		1.7-3.3	i i		None		None
	i	May		1.7-3.3	i i		None		None
	i	June			i i		None		None
	i	July	i	i	i i		None		None
	i	August		i	i i		None		None
	i	September		i	i i		None		None
	İ	October	j	i	i i		None		None
	İ	November	0.5-1.5	1.7-3.3	i i		None		None
	İ	December	0.5-1.5	1.7-3.3	i i		None		None
Hudson	C	 		 	 				İ
		January	1.3-2.0	1			None		None
		February	1.3-2.0	>6.0			None		None
		March	1.3-2.0	>6.0			None		None
		April	1.3-2.0	!			None		None
		May	1.3-2.0	1			None		None
	ļ	June					None		None
	ļ	July					None		None
	ļ	August					None		None
	ļ	September					None		None
		October					None		None
		November	1.3-2.0				None		None
		December	1.3-2.0	>6.0			None		None
9B,79C,79D,79E,79F:		 		 	 				
Mongaup	C	   Tamus =					No.		
		January					None		None
		February					None		None
		March					None		None
	1	April					None		None

Table 24.-Water Features-Continued

Table 24.-Water Features-Continued

		1	Water	table	l	Ponding	<u></u>	Floo	ding
Map symbol and soil name	Hydro- logic group	Month   	Upper     limit	Lower limit	Surface    water   depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft		·		
79B,79C,79D,79E,79F:	İ	İ	i i		i i		i i		İ
Mongaup	Ì	May	i i		j j		None		None
	Ì	June	j j		j j		None		None
	Ì	July	j j		j j		None		None
		August					None		None
		September					None		None
		October					None		None
		November					None		None
		December					None		None
OA,80B,80C:									
Fremont	C	[	ļ į				į į		[
		January	0.5-1.5	>6.0			None		None
		February	0.5-1.5	>6.0			None		None
		March	0.5-1.5	>6.0			None		None
		April	0.5-1.5	>6.0			None		None
	ļ	May	0.5-1.5	>6.0			None		None
	ļ	June					None		None
	ļ	July					None		None
	ļ	August					None		None
	ļ	September					None		None
		October					None		None
		November	0.5-1.5	>6.0			None		None
		December	0.5-1.5	>6.0			None		None
1B,81C,81D,81E:		İ	į į		į į		į į		
Varysburg	В	ļ							
		January	1.5-2.8	>6.0			None		None
		February	1.5-2.8	>6.0			None		None
		March	1.5-2.8	>6.0			None		None
		April	1.5-2.8	>6.0			None		None
		May	1.5-2.8	>6.0			None		None
		June					None		None
		July					None		None
		August					None		None
		September					None		None
		October					None		None
		November	1.5-2.8	>6.0			None		None
		December	1.5-2.8	>6.0			None		None
2F:									
Rock outcrop	D	!							!
		January					None		None
	!	February					None		None
	!	March					None		None
	!	April					None		None
	ļ	May					None		None
	1	June					None		None

		1	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	table	1	Ponding		F100	ding
Map symbol and soil name	Hydro-	Month	Upper limit	Lower	Surface   water	Duration	Frequency	Duration	Frequency
	group	l	l	l	depth		İ		l
			Ft	Ft	Ft				
82F:		July					None		None
Rock outcrop		August					None		None
		September					None		None
		October					None		None
		November					None		None
		December					None		None
Manlius	С	 		 					
	İ	January	j	j	i i		None		None
	İ	February	j	j	i i		None		None
	İ	March	j	j	i i		None		None
	İ	April	j	j	i i		None		None
	İ	May	j	j	i i		None		None
	İ	June	j	j	i i		None		None
	İ	July	j	j	i i		None		None
	İ	August	j	j	i i		None		None
	İ	September	j	i	i i		None		None
	İ	October	j	j	i i		None		None
	İ	November	j	i	i i		None		None
	į	December		ļ	ļ ļ		None		None
84B,84C:		 			 				
Elko	c	İ	i	i	i i		i i		i
	-	January	1.2-2.0	1.5-2.5	i i		None		None
	i	February	1	1.5-2.5	i i		None		None
	i	March	!	1.5-2.5	i i		None		None
	i	April	!	1.5-2.5	!!!		None		None
	i	May	,	1.5-2.5	i i		None		None
	i	June			i i		None		None
	i	July	i		i i		None		None
	i	August	i		i i		None		None
	i	September			i i		None		None
	i	October	i		i i		None		None
	i	November	1.2-2.0	1.5-2.5	i i		None		None
		December	1	1.5-2.5			None		None
85B,85C,85D:		 							
Onoville	c	! 							
OTTO A TTT 6		  January	1 2-2 0	1.3-3.0			None		None
	1	February	1	1.3-3.0			None		None
		March	,	1.3-3.0			None		None
		1	1	1.3-3.0	!!!		! !		!
		April	!	!	 		None		None
		May  June	1.2-2.0	1.3-3.0	 		None None		None None
			1	!	!!!		! !		!
		July  August		 	 		None None	 	None None
		LAUGUST.			1		None		None

Table 24.-Water Features-Continued

Table 24.-Water Features-Continued

			Water	table		Ponding		Floo	ding
Map symbol and soil name	Hydro-  logic  group	Month	Upper   limit	Lower   limit 	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
85B,85C,85D:		October					None		None
Onoville		November	1.2-2.0	1.3-3.0			None		None
		December	1.2-2.0	1.3-3.0			None		None
36B,86C,86D:	! 			 	 				
Eldred	C								
		January	1.5-2.0	>6.0			None		None
		February	1.5-2.0	>6.0			None		None
		March	1.5-2.0	>6.0			None		None
		April	1.5-2.0	>6.0			None		None
		May	1.5-2.0	>6.0			None		None
		June					None		None
		July					None		None
		August					None		None
		September					None		None
		October					None		None
		November	1.5-2.0	>6.0			None		None
		December	1.5-2.0	>6.0			None		None
37B,87C:	 			 	 				
Shongo	C	İ	İ	İ	j i		į į		İ
	Ì	January	0.5-1.5	1.3-2.5	i i		None		None
	Ì	February	0.5-1.5	1.3-2.5	i i		None		None
		March	0.5-1.5	1.3-2.5			None		None
		April	0.5-1.5	1.3-2.5			None		None
		May	0.5-1.5	1.3-2.5			None		None
		June					None		None
		July					None		None
		August					None		None
	Ì	September	j	j	i i		None		None
		October					None		None
		November	0.5-1.5	1.3-2.5			None		None
	ļ	December	0.5-1.5	1.3-2.5			None		None
38A,88B,88C,88D:	! 			 	 				
Ivory	C								
		January	0.5-1.5	>6.0			None		None
		February	0.5-1.5	>6.0			None		None
		March	0.5-1.5	>6.0			None		None
		April	0.5-1.5	>6.0			None		None
		May	0.5-1.5	>6.0			None		None
		June	j		j j		None		None
		July	j		j j		None		None
		August	j	i	i i		None		None
	ĺ	September	j	j	i i		None		None
	İ	October	j	i	i i		None		None
	İ	November	0.5-1.5	>6.0	i i		None		None
	İ	December	0.5-1.5	>6.0	i i		None		None

			Water	table		Ponding		Floo	ding
Map symbol and soil name	Hydro-	Month	Upper	Lower	Surface	Duration	Frequency	Duration	Frequenc
and boll name	group	İ			depth	l I	i i		i
·····	group_		Ft.	Ft	Ft		·		
9B,89C:		! 	"	10	10	 			
Portville	c	l I		l I	ŀ	 			
FOICVIIIE	-	  January	0 5-1 5	1.0-3.0		 	None		None
		February	•	1.0-3.0		 	None		None
		March	1	1.0-3.0		 	None		None
		April	!	1.0-3.0		 	None		None
		May	1	1.0-3.0		 	None		None
		June				 	None		None
		July		 		 	None		None
		August		 		 	None		None
		September		 		 	None		None
		October		 	 	 	None		None
		November	1	1.0-3.0		 	None		None
		December	1	1.0-3.0		 	None		None
		December	0.5-1.5	1.0-3.0		<del></del>	None		None
0A,90B:		 		l I		 			
Brinkerton	   D	 		l I		 			
Brinker con	ען	   Tamesames	0005	   0 0 2 E		l l	None		None
		January	•	0.9-2.5		 	None None		None
		February  March		0.9-2.5			None		!
		!	•	0.9-2.5	!				None
		April	1	0.9-2.5		 	None		None
		May	!	0.9-2.5		!	None		None
		June					None		None
		July					None		None
		August					None		None
		September	1	0.9-2.5			None		None
		October	1	0.9-2.5			None		None
		November	1	0.9-2.5			None		None
		December	0.0-0.5	0.9-2.5			None		None
				ļ			!!!		
1A:									
Palms	A/D					 	! _ !		
		January	0.0-1.0			Very long	Frequent		None
		February	0.0			Very long	Frequent		None
		March	0.0			Very long	Frequent		None
		April	0.0			Very long	Frequent		None
	ļ	May	0.0			Very long	Frequent		None
	ļ	June	0.0		0.0-0.5	Long	Occasional		None
	!	July	0.0		0.0-0.5	Long	Occasional		None
	İ	August	0.0	!	0.0-0.5	Long	Occasional		None
	ļ	September	0.0	!	0.0-0.5	Long	Occasional		None
	[	October	0.0		0.0-0.5	Long	Occasional		None
		November	0.0			Very long	Frequent		None
		December	0.0	0.0-1.0	0.0-1.0	Very long	Frequent		None

Table 24.-Water Features-Continued

Table 24.-Water Features-Continued

			Water	table		Ponding		Floo	ding
Map symbol and soil name	Hydro-  logic  group	Month   	Upper   limit	Lower   limit 	Surface   water   depth	Duration   	Frequency     	Duration	Frequency
			Ft	Ft	Ft		ii		
2:	İ	İ	İ	İ	İ	İ	į į		İ
Carlisle	A/D	ĺ	İ	İ	İ	İ	į į		İ
	İ	January	0.0	0.0-1.0	0.0-1.0	Very long	Frequent		None
	İ	February	0.0	0.0-1.0	0.0-1.0	Very long	Frequent		None
	İ	March	0.0-1.0	>6.0	0.0-1.0	Very long	Frequent		None
	İ	April	0.0-1.0	>6.0	0.0-1.0	Very long	Frequent		None
	İ	May	0.0	0.0-1.0	0.0-1.0	Very long	Frequent		None
	İ	June	0.0	0.0-1.0	0.0-1.0	Very long	Frequent		None
	İ	July	0.0	0.0-1.0	0.0-0.5	Long	Occasional		None
	İ	August	0.0-1.0	>6.0	0.0-0.5	Long	Occasional		None
	İ	September	0.0-1.0	>6.0	0.0-1.0	Very long	Frequent		None
	İ	October	0.0			Very long	Frequent		None
	İ	November	0.0			Very long	Frequent		None
	İ	December	0.0-1.0			Very long	Frequent		None
	İ								
3:	i	i	i	i	i	i	i		i
Saprists, inundated	A/D	i	i	i	i	i	i		i
ир-1200, 11141144004	, -	January	0.0	0.0-1.0	0.0-1.0	  Very long	Frequent		None
		February	0.0			Very long	Frequent		None
	l	March	0.0	!	!	Very long	Frequent		None
	l I	April	0.0-1.0			Very long	Frequent		None
	l I	May	0.0			Very long	Frequent		None
	l I	June	0.0			Very long	Frequent		None
	 	July	0.0-1.0			Very long	Frequent		None
		August	0.0		!	Very long	Frequent		None
		! -	0.0			Very long			None
	l	September  October	0.0-1.0	!		Very long	Frequent     Frequent	 	None
	l	November	0.0	1		, -			None
	l	December	!	!	!	Very long	Frequent		None
		December	0.0	0.0-1.0	0.0-1.0	Very long	Frequent		None
4B,94C:		ļ I	-		!				
• • • • • • • • • • • • • • • • • • • •	c	ļ I	-						
Frewsburg	0	   Tamus annu	0 5 1 5				None		None
		January		1.7-3.3			None		
		February		1.7-3.3			None		None
		March	1	1.7-3.3			None		None
		April	1	1.7-3.3			None		None
		May	!	1.7-3.3			None		None
		June					None		None
		July					None		None
		August					None		None
		September					None		None
		October					None		None
	ļ	November	1	1.7-3.3			None		None
	1	December	10.5-1.5	1.7-3.3			None		None

			Water	table	l	Ponding	<u>'</u>	Floo	ding
Map symbol	Hydro-	Month	Upper	Lower	Surface	Duration	Frequency	Duration	Frequenc
and soil name	logic		limit	limit	water				
	group		.1	l	depth				1
			Ft	Ft	Ft				
5B,95C,95D,95E,95F:									
Mandy	C								
		January					None		None
		February					None		None
		March					None		None
		April					None		None
		May					None		None
		June					None		None
		July					None		None
		August					None		None
		September					None		None
		October					None		None
		November					None		None
		December					None		None
6B:									
Carrollton	C								
		January	1	2.0-3.3			None		None
		February		2.0-3.3			None		None
		March	2.0-3.3	2.0-3.3			None		None
		April	2.0-3.3	2.0-3.3			None		None
		May					None		None
		June					None		None
		July					None		None
		August					None		None
		September					None		None
		October					None		None
		November		2.0-3.3			None		None
		December	2.0-3.3	2.0-3.3			None		None
6C,96D,96E,96F:									
Carrollton	C								
		January					None		None
		February					None		None
		March					None		None
		April					None		None
		May					None		None
		June					None		None
		July					None		None
		August					None		None
		September					None		None
		October					None		None
		November					None		None
		December					None		None

Table 24.-Water Features-Continued

Table 24.-Water Features-Continued

			Water	table	.	Ponding		F100	ding
Map symbol and soil name	Hydro-  logic  group	Month   	Upper   limit	Lower   limit 	Surface    water     depth	Duration	Frequency   	Duration	Frequency
			Ft	Ft	Ft				`
7B,97C:	İ	İ	j i	İ	i i		i i		İ
Kinzua	В	İ	j i	İ	i i		i i		İ
	İ	January	4.0-6.0	>6.0	j j		None		None
	İ	February	4.0-6.0	>6.0	j j		None		None
	İ	March	4.0-6.0	>6.0	j j		None		None
	İ	April	4.0-6.0	>6.0	j j		None		None
	İ	May	j i	j	j j		None		None
	İ	June	j i	j	j j		None		None
	İ	July	i i	i	j j		None		None
	İ	August	i i	i	j j		None		None
	İ	September	i i	i	j j		None		None
	İ	October		i	j j		None		None
	İ	November	4.0-6.0	>6.0	j j		None		None
	ļ	December	4.0-6.0	>6.0	ļ ļ		None		None
7D,97E,97F:		 		 					
Kinzua	В	İ	į į	İ	į į		į į		İ
	İ	January		i	j j		None		None
	İ	February		i	j j		None		None
	İ	March		i	j j		None		None
	İ	April		i	j j		None		None
	İ	May		i	j j		None		None
	İ	June	j i	j	j j		None		None
	İ	July	j i	j	j j		None		None
	İ	August	j i	j	j j		None		None
	İ	September	j i	j	j j		None		None
	İ	October		j	j j		None		None
	İ	November	i i	i	j j		None		None
	į	December			ļ ļ		None		None
BD,98E:				 					
Kinzua	В								
		January					None		None
		February					None		None
		March					None		None
		April					None		None
		May					None		None
		June					None		None
		July		i	j j		None		None
		August		i	j j		None		None
	İ	September	i i	j	j j		None		None
	İ	October	i i	j	j j		None		None
	İ	November	j i	i	j j		None		None
	i	December	i	i	i i		None		None

Table 24.-Water Features-Continued

			water	table		Ponding		Flooding		
Map symbol and soil name	Hydro-	Month	Upper limit	Lower	Surface water depth	Duration	Frequency	Duration	Frequency	
	group	ļ	Ft Ft	Ft.	Ft Ft		·		·	
9B,99C,99D:		<u> </u>	l FC	FC	FC					
Buchanan	C									
		January		1.7-3.0			None		None	
		February		1.7-3.0			None		None	
		March	1	1.7-3.0			None		None	
		April	1.5-2.0	1.7-3.0			None		None	
		May	1.5-2.0	1.7-3.0			None		None	
		June					None		None	
		July					None		None	
		August					None		None	
		September					None		None	
		October					None		None	
	İ	November	1.5-2.0	1.7-3.0	j i		None		None	
	į	December	1.5-2.0	1.7-3.0	ļ ļ		None		None	
00:				 	 					
Jdorthents	A	İ	İ	İ	į i		į į		İ	
	İ	January	j	i	j j		None		None	
	İ	February	j	i	j j		None		None	
	İ	March	j	i	j j		None		None	
	İ	April	j	i	j j		None		None	
	İ	May		i	i i		None		None	
	İ	June			i i		None		None	
	i	July		i	i i		None		None	
	i	August		i	i i		None		None	
	i	September			i i		None		None	
	i	October			i i		None		None	
		November			i i		None		None	
		December					None		None	
01:		 		 	 					
Udorthents, refuse	į	į	ļ	į	į		į į			
substratum	A		ļ	ļ						
		January					None		None	
		February					None		None	
		March					None		None	
		April					None		None	
		May					None		None	
		June					None		None	
		July					None		None	
		August			j j		None		None	
		September			j j		None		None	
		October	j	j	j j		None		None	
	İ	November	j	j	j j		None		None	
		December	i	i	i i		None		None	

Table 24.-Water Features-Continued

Map symbol		1	Water table		Ponding			Flooding	
	Hydro- logic group	Month   	Upper   limit 	Lower limit	Surface    water     depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				1
02C:		İ	j		i i		i i		İ
Mandy	C	İ	ĺ		į į		į į		İ
İ		January			j j		None		None
İ		February			j j		None		None
į		March	i		j j		None		None
İ		April			j j		None		None
İ		May			j j		None		None
j		June	i		j j		None		None
j		July	i		j j		None		None
İ		August			j j		None		None
j		September	i		j j		None		None
j		October	i		j j		None		None
į		November	i		j j		None		None
į		December	i		j j		None		None
02C:		İ	j	İ	i i		į į		İ
Rock outcrop	D	j	į	İ	i i		i i		İ
- i		January			j j		None		None
į		February			j j		None		None
į		March			j j		None		None
į		April			j j		None		None
į		May			j j		None		None
į		June			j j		None		None
į		July			j j		None		None
į		August			j j		None		None
į		September			j j		None		None
į		October			j j		None		None
į		November			j j		None		None
į		December	i		j j		None		None
į		j	į	İ	i i		i i		İ
03C:		j	į		i i		i i		İ
Knapp Creek	В	j	į		i i		i i		İ
i		January	i		j j		None		None
į		February	i		j j		None		None
į		March			j j		None		None
į		April			j j		None		None
į		May			j j		None		None
į		June			j j		None		None
İ		July			j j		None		None
İ		August			j j		None		None
İ		September			j j		None		None
İ		October			j j		None		None
		November			i i		None		None
									1

and soil name	Hydro- logic group D	January February March April May June July August September October November	Upper	Lower   limit	Surface water depth Ft	 None None None None None None None None	   Frequency
03C: Rock outcrop	group D	February March April May June July August September October November	Ft	Ft	depth   Ft	 None None None None None None None None	 None None None None None None None None
L03C: Rock outcrop	D	February March April May June July August September October November	           	           	Ft   -	 None None None None None None None None	 None None None None None None None None
Rock outcrop		February March April May June July August September October November	           	           		 None None None None None None None None	 None None None None None None None None
Rock outcrop		February March April May June July August September October November	         	           		 None None None None None None None None	 None None None None None None None None
L04B,104C,104D,104E:		February March April May June July August September October November	         	           		 None None None None None None None None	 None None None None None None None None
	В	February March April May June July August September October November	         	           		 None None None None None None None None	 None None None None None None None None
	В	March April May June July August September October November	         	         	                 	 None None None None None None None None	 None None None None None None None None
	В	April May June July August September October November	       	       	             	 None None None None None None None None	 None None None None None None
	В	May June July August September October November	     	       	         	    None None None None None None	 None None None None None
	В	June  July  August  September  October  November	     	     	         	   None None None None None None	   None None None None
	В	July  August  September  October  November	     	     	         	 None None None None None	   None None None None
	В	August  September  October  November	   	   	     	   None None None	  None None None
	В	September  October  November	   	   	     	  None None None	 None None
	В	October November	 			 None None	 None
	В	November				 None	
	В	1	!	!	: :	!	 None
	В	December   	 	i i	j j	 37	140116
	В	 	į	İ	!!!	None	 None
	В	İ	i			i i	i
Flatiron	В	1	1	İ	i i	i i	i
			İ	i	i i	i i	i
į		January		i	i i	 None	 None
į		February		i	i i	 None	 None
İ		March			i i	 None	 None
İ		April			i i	 None	 None
.04B,104C,104D,104E:		May			i i	 None	 None
Flatiron		June			i i	 None	 None
		July			i i	 None	 None
		August			i i	 None	 None
		September			i i	 None	 None
		October			i i	 None	 None
		November			i i	 None	 None
		December			i i	 None	 None
			i	i	i i		
.08D,108E,108F:		İ	i	i	i i	i i	İ
Hartleton	В	İ	İ	i	i i	i i	İ
	_	January			i i	 None	 None
İ		February			i i	 None	 None
İ		March			i i	 None	 None
İ		April			i i	 None	 None
		May				 None	 None
		June				 None	 None
		July				 None	 None
		August				 None	 None
		September				 None	 None
		October				 None	 None
		November				 None	 None
		December				 None	 None

Table 24.-Water Features-Continued

Table 24.-Water Features-Continued

			Water	table		Ponding	·	Flooding	
Map symbol	Hydro-	Month	Upper	Lower	Surface	Duration	Frequency	Duration	Frequency
and soil name	logic		limit	limit	water				
	group		1		depth				
	i		Ft	Ft	Ft				
31:	Ì	İ	İ	ĺ	į į		į į		İ
Lamson	B/D								
		January	0.0-0.5	>6.0			None		None
		February	0.0-0.5	>6.0			None		None
		March	0.0-0.5	>6.0			None		None
		April	0.0-0.5	>6.0			None		None
		May	0.0-0.5	>6.0			None		None
		June					None		None
		July					None		None
	Ì	August	j	j	i i		None		None
	Ì	September	j	j	i i		None		None
	Ì	October	j	j	i i		None		None
	Ì	November	0.0-0.5	>6.0	i i		None		None
	Ì	December	0.0-0.5	>6.0	i i		None		None
	Ì	İ	İ	ĺ	į į		į į		İ
32B,132C:	Ì	İ	İ	ĺ	į į		į į		İ
Wiscoy	C								
		January	0.5-1.5	0.7-1.7			None		None
		February	0.5-1.5	0.7-1.7			None		None
	Ì	March	0.5-1.5	0.7-1.7	i i		None		None
	Ì	April	0.5-1.5	0.7-1.7	i i		None		None
		May	0.5-1.5	0.7-1.7			None		None
32B,132C:	Ì	June	j	j	i i		None		None
Wiscoy	Ì	July	j	j	i i		None		None
	Ì	August	j	j	i i		None		None
	Ì	September	j	j	i i		None		None
		October					None		None
		November	0.5-1.5	0.7-1.7			None		None
		December	0.5-1.5	0.7-1.7			None		None
	Ì	İ	İ	ĺ	į į		į į		İ
35C,135D,135E:									
Hudson	C								
		January	1.3-2.0	>6.0			None		None
		February	1.3-2.0	>6.0			None		None
		March	1.3-2.0	>6.0			None		None
		April	1.3-2.0	>6.0			None		None
		May	1.3-2.0	>6.0			None		None
		June					None		None
		July	j	i	j j		None		None
		August	j	j	i i		None		None
	İ	September	j	j	i i		None		None
	İ	October	j	j	i i		None		None
	İ	November	1.3-2.0	>6.0	i i		None		None
	İ	December	1.3-2.0	>6.0	i i		None		None
	i	i	i	i	i i		i i		İ

		1	Water	table		Ponding		Floo	ding
Map symbol and soil name	Hydro- logic group	Month	Upper limit	Lower   limit	Surface   water   depth	Duration	Frequency	Duration	Frequency
		ļ	Ft	Ft	Ft		[ [		
L40D,140E:			ļ		!!!		!!!		
Dunkirk	В		ļ	!	!!				
		January					None		None
		February					None		None
		March					None		None
		April					None		None
		May					None		None
		June					None		None
		July					None		None
		August					None		None
		September					None		None
		October					None		None
		November					None		None
		December					None		None
			ļ						
.85C,185D:	_		ļ	!			!!!		
Onoville	C	_							
		January	,	1.3-3.0			None		None
		February	,	1.3-3.0			None		None
		March	!	1.3-3.0	!!!		None		None
		April	,	1.3-3.0	!!!		None		None
		May	!	1.3-3.0			None		None
		June					None		None
		July					None		None
		August					None		None
		September					None		None
		October					None		None
		November		1.3-3.0			None		None
		December	1.2-2.0	1.3-3.0			None		None
			ļ						
.87B,187C:				!					
Shongo	C	_							
		January	1	1.3-2.5			None		None
		February	,	1.3-2.5			None		None
		March	1	1.3-2.5			None		None
		April	,	1.3-2.5	: :		None		None
		May	!	1.3-2.5			None		None
		June					None		None
		July					None		None
		August					None		None
		September					None		None
		October					None		None
		November	1	1.3-2.5			None		None
		December	0.5-1.5	1.3-2.5			None		None

Table 24.-Water Features-Continued

Table 24.-Water Features-Continued

	1	1	Water	table		Ponding	·	Flooding	
Map symbol	Hydro-	Month	Upper	Lower	Surface	Duration	Frequency	Duration	Frequency
and soil name	logic		limit	limit	water				
	group	1		1	depth				
			Ft	Ft	Ft				
88B,188C,188D:	İ	İ	İ	İ	į į		İ		İ
Cavode	C								
		January	0.5-1.5	5.0-6.0			None		None
		February	0.5-1.5	5.0-6.0			None		None
		March	0.5-1.5	5.0-6.0			None		None
		April	0.5-1.5	5.0-6.0			None		None
		May	0.5-1.5	5.0-6.0			None		None
	İ	June			j j		None		None
		July					None		None
	İ	August			j j		None		None
	İ	September			j j		None		None
	İ	October			j j		None		None
	İ	November	0.5-1.5	5.0-6.0	j j		None		None
	j	December	0.5-1.5	5.0-6.0	j j		None		None
	İ	İ	İ	İ	į į		İ		İ
89B,189C:	j	İ	İ	İ	į į		j j		İ
Portville	C	İ	İ	İ	į į		j j		İ
	j	January	0.5-1.5	1.0-3.0	j j		None		None
	j	February	0.5-1.5	1.0-3.0	j j		None		None
	j	March	0.5-1.5	1.0-3.0	j j		None		None
	İ	April	0.5-1.5	1.0-3.0	j j		None		None
	İ	May	0.5-1.5	1.0-3.0	j j		None		None
	İ	June			j j		None		None
	İ	July			j j		None		None
	İ	August			j j		None		None
	İ	September			j j		None		None
	İ	October			j j		None		None
	İ	November	0.5-1.5	1.0-3.0	j j		None		None
	i	December		1.0-3.0	i i		None		None
	i	İ			i i				i
95C,195D,195E:	i	İ	İ	İ	į i		İ		İ
Mandy	c	İ	i	i	j i		į į		i
-	İ	January			j j		None		None
	İ	February			j j		None		None
	İ	March			j j		None		None
	İ	April			j j		None		None
	İ	May			j j		None		None
	İ	June			j j		None		None
	į	July			i i		None		None
	i	August			i i		None		None
	İ	September			i i		None		None
	İ	October			i i		None		None
	İ	November			i i		None		None
	İ	December			i i		None		None
	1		i	i	i i				

				er table	Ponding			Flooding	
Map symbol	Hydro-	Month	Upper	Lower	Surface	Duration	Frequency	Duration	Frequency
and soil name	logic	İ	limit	limit	water		į į		İ
	group	İ	İ	İ	depth		į į		İ
			Ft	Ft	Ft				
99C,199D:	İ	į	İ	İ	i i		i i		İ
Buchanan	C	İ	İ	İ	i i		j j		İ
	j	January	1.5-2.0	1.7-3.0	i i		None		None
	j	February	1.5-2.0	1.7-3.0	i i		None		None
	j	March	1.5-2.0	1.7-3.0	i i		None		None
	j	April	1.5-2.0	1.7-3.0	i i		None		None
	j	May	1.5-2.0	1.7-3.0	i i		None		None
	j	June		j	i i		None		None
	j	July		j	i i		None		None
	Ì	August		j	i i		None		None
	Ì	September		j	i i		None		None
	İ	October		i	i i		None		None
	j	November	1.5-2.0	1.7-3.0	i i		None		None
	j	December	1.5-2.0	1.7-3.0	i i		None		None
	j	İ	İ	İ	i i		j j		İ
89B,289C,289D,289E,289F:	İ	į	İ	j	i i		i i		İ
Ceres	В	İ	İ	İ	i i		j j		İ
	j	January		j	i i		None		None
	j	February		j	i i		None		None
	j	March		j	i i		None		None
	İ	April		i	i i		None		None
	İ	May		i	i i		None		None
	Ì	June		i	i i		None		None
	İ	July		i	i i		None		None
	İ	August	i	i	i i		None		None
	Ì	September		i	i i		None		None
	Ì	October		i	i i		None		None
	Ì	November		i	i i		None		None
	Ì	December		i	i i		None		None
	i		İ	İ	i i				
00:	Ì	İ	i	i	i i		i i		
Wakeville	В	İ	i	i	i i		i i		
	Ì	January	0.5-1.5	>6.0	i i		None	Brief	Occasiona
	Ì	February	0.5-1.5		i i		None	Brief	Occasiona
	Ì	March	0.5-1.5	>6.0	i i		None	Brief	Occasiona
	i	April	0.5-1.5	1	i i		None	Brief	Occasiona
	i	May	0.5-1.5	1	i i		None	Brief	Occasiona
	Ì	June		i	i i		None		None
	i	July		i	i i		None		None
	i	August		i	i i		None		None
	i	September		i	i i		None		None
	i	October		i	i i		None		None
	İ	November	0.5-1.5	>6.0	i i		None	Brief	Occasiona
	i	December	0.5-1.5	>6.0	i i		None	Brief	Occasiona

Table 24.-Water Features-Continued

Table 24.-Water Features-Continued

			Water	table		Ponding	<u> </u>	Floo	ooding	
Map symbol	Hydro-	Month	Upper	Lower	Surface	Duration	Frequency	Duration	Frequency	
and soil name	logic		limit	limit	water					
	group	1			depth					
			Ft	Ft	Ft					
96B:	İ	İ	İ	İ	į į		j j		İ	
Gilpin	C	İ	İ	İ	i i		į į		İ	
	İ	January	2.0-3.3	2.0-3.3	i i		None		None	
	İ	February	2.0-3.3	2.0-3.3	i i		None		None	
	İ	March	2.0-3.3	2.0-3.3	i i		None		None	
	İ	April	2.0-3.3	2.0-3.3	i i		None		None	
	İ	May	j	j	i i		None		None	
	İ	June	j	i	i i		None		None	
	İ	July	j	j	i i		None		None	
	İ	August	j	i	i i		None		None	
	İ	September	j	j	i i		None		None	
	İ	October	j	j	i i		None		None	
	İ	November	2.0-3.3	2.0-3.3	i i		None		None	
	İ	December	2.0-3.3	2.0-3.3	i i		None		None	
	İ	İ	İ	İ	i i		į į		İ	
96C,496D,496E,496F:	İ	İ	İ	İ	i i		į į		İ	
Gilpin	C	İ	İ	İ	i i		į į		İ	
_	İ	January	j	j	i i		None		None	
	İ	February	j	j	i i		None		None	
	İ	March	j	j	i i		None		None	
	İ	April	j	i	i i		None		None	
	İ	May	j	i	i i		None		None	
	İ	June	j	i	i i		None		None	
	İ	July	j	i	i i		None		None	
	İ	August	j		i i		None		None	
	İ	September	j		i i		None		None	
	İ	October	j		i i		None		None	
	İ	November	j		i i		None		None	
	İ	December	j		i i		None		None	
	İ	İ	i	i	i i		i i		İ	
97D,497E,497F:	İ	j	İ	İ	i i		i i		İ	
Rayne	В	j	İ	İ	i i		i i		İ	
-	İ	January	j	i	i i		None		None	
	İ	February	j	i	i i		None		None	
	İ	March	j	i	i i		None		None	
	İ	April	j	i	i i		None		None	
	İ	May	j	i	i i		None		None	
	İ	June	j		i i		None		None	
	İ	July			i i		None		None	
	İ	August			i i		None		None	
	İ	September			i i		None		None	
	İ	October			i i		None		None	
	İ	November			i i		None		None	
	!	December	i		: !		None		!	

Table 24.-Water Features-Continued

			Water	table	.	Ponding		Flooding	
Map symbol	Hydro-	Month	Upper	Lower	Surface	Duration	Frequency	Duration	Frequency
and soil name	logic		limit	limit	water				
	group		1 1		depth				
			Ft	Ft	Ft				
498E:	i	İ	i i		i i		į į		i
Rayne	В	İ	i i		i i		j i		İ
-	İ	January	i i		i i		None		None
	İ	February	i i		i i		None		None
	i	March	i i		i i		None		None
	İ	April	i i		i i		None		None
	i	May	i i		i i		None		None
	i	June	i i		i i		None		None
	i	July	i i		i i		None		None
	i	August	i i		i i		None		None
		September	i i		i i		None		None
		October	i i		i i		None		None
		November	i i		i i		None		None
		December	i i		i i		None		None
	i		i i		i i		i i		
800:	i	i	i i		i i		į i		i
Holderton	В	i	i i		i i		į i		i
	i	January	0.5-1.5	>6.0	i i		None	Brief	Occasiona
	i	February	0.5-1.5		i i		None	Brief	Occasiona
	i	March	0.5-1.5		i i		None	Brief	Occasiona
		April	0.5-1.5		i i		None	Brief	Occasiona
	i	May	0.5-1.5		i i		None	Brief	Occasiona
		June			i i		None		None
		July	i i				None		None
		August	i i				None		None
		September	i i				None		None
	i	October	i i		i i		None		None
		November	0.5-1.5	>6.0	i i		None	Brief	Occasiona
		December	0.5-1.5	>6.0	i i		None	Brief	Occasiona
	i				i i				
PG:	i	İ	i i		i i		i i		i
Pits, gravel		i	j i		į i		į i		İ
	i	Jan-Dec	i i		i i		None		
	i		i i		i i				i
Jr:	İ	i	j i		į i		į i		i
Urban land		i	j i		į i		į i		İ
	İ	January	i i				None		None
	i	February	i i		i i		None		None
	i	March	i i		i i		None		None
		April	i i		i i		None		None
	i	May	i i		i i		None		None
	1	June					None		None

Table 24.-Water Features-Continued

equency
None
None
None
None
None
None

Soll Survey

(See text for definitions of terms used in this table. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Table 25.—Soil Features

Map symbol		Restric	tive layer		Potential	Risk of	corrosion
and soil name	Kind	Depth to top	  Thickness	Hardness	for frost action	Uncoated steel	Concrete
_		In	In				
1: Udifluvents					  Moderate	  Moderate	  High
Fluvaquents		 		 	  High 	  High 	  High
2: Hamlin		   			  High	Low	    Low
3: Tioga	   	   		   	    Moderate	    Low	    Moderate
4: Teel	   	   	   	   	    High	    Moderate	    Low
5: Wayland	   	   	   	   	    High	    High	    Low
6A: Wyalusing	   			   	    High	    High	    Moderate 
7A: Philo		   			  Moderate	    Moderate	    High
8: Middlebury	   			   	    Moderate	    Moderate	    Low
9: Pawling	   			   	    Moderate	Low	    Low
10: Atkins		   			  High	  High	    High
11B,11C,11D,11E,11F: Ischua	    Bedrock (lithic)	20-40		    Strongly cemented	  Moderate	    Moderate	    High
12B,12C,12D,12E: Franklinville		   	   	   	    Moderate	    Low	    Moderate
14B,14C: Hornellsville	  Bedrock   (paralithic)	     20-40 	     	    Weakly cemented	    High 	    High 	    High 
15B,15C,15D: Willdin	    Fragipan 	     16-26	     18-50	    Noncemented	    Moderate	    Moderate	    Moderate

Table 25.-Soil Features-Continued

Map symbol		Restric	tive layer	   Potential	Risk of corrosion		
and soil name	Kind	Depth to top	  Thickness	Hardness	for frost action	Uncoated steel	Concrete
16A,16B,16C:		In	In				
Almond					High	High	High
17B,17C,17D,17E: Salamanca					Moderate	    Moderate	High
18A: Pope					Moderate	Low	High
19A,19B: Olean	   			   	    High	Low	Moderate
20A,20B,20C,20D: Unadilla					    High	Low	Moderate
22A,22B: Allard	   			   	    High	Low	Moderate
25A,25B,25C,25D,25E,25F: Chenango					    Moderate	Low	Moderate
26A,26B: Chenango, fan					Moderate	Low	Moderate
27A,27B: Castile					Moderate	    Moderate	Moderate
28A: Scio					High	    Moderate	Moderate
29A,29B,29C,29D,29E: Chenango					Moderate	Low	Moderate
31B,31C: Collamer					High	    Moderate	Low
32A,32B: Churchville					High	    High	Low
33A: Wallington	    Fragipan	12-24	10-30	    Noncemented	High	    High	Moderate
34: Getzville					High	    High	Low
35A,35B,35C: Rhinebeck	   				High	    High 	Low

		Restric	tive layer			Risk of corrosion	
Map symbol					Potential		
and soil name		Depth	ļ		for	Uncoated	
	Kind	to top	Thickness	Hardness	frost action	steel	Concrete
36:		In	In	 		 	
Canadice					High	  High 	Low
37A,37B: Tonawanda					  High	  High	Low
38A,38B: Niagara				   	High	    High	Low
39A: Halsey				   	High	    High	Low
40A,40B,40C: Williamson	Fragipan	15-24	8-38	    Noncemented	High	    Moderate	Moderate
41A,41B: Barcelona	Bedrock (paralithic)	40-60		  Moderately   cemented	  High 	    High 	Low
42A,42B: Elnora					Moderate	    Low	Moderate
43: Canandaigua, silt loam-				   	    High	    High 	Low
44: Canandaigua, mucky silt loam				   	High	    High	Low
45: Canandaigua, acid substratum					High	    High	Moderate
46: Swormville					High	    Moderate	Low
47A: Minoa					High	    Moderate	Moderate
48A,48B,48C: Colonie					Low	    Low	Moderate
49A: Red Hook				   	High	    Moderate	Moderate
50A,50B,50C: Canaseraga	Fragipan	18-34	12-40	    Noncemented	    High	    Moderate	    Moderate

Table 25.-Soil Features-Continued

Table 25.—Soil Features—Continued

Map symbol		Restric	tive layer		Potential	Risk of corrosion		
and soil name	     Kind	Depth to top	    Thickness	Hardness	for frost action	Uncoated steel	Concrete	
		In	In					
51B,51C,51D,51E,51F: Chadakoin			j 		Moderate	Low	High	
52B,52C,52D,52E,52F: Valois	   		   	   	Moderate	Low	High	
53C: Valois			   		Moderate	Low	High	
Volusia	  Fragipan	10-22	20-64	  Noncemented	High	  High	Moderate	
Mardin	  Fragipan	14-26	15-56	  Noncemented	Moderate	  Moderate	Moderate	
55A,55B,55C: Darien	   		   	   	    High	    High 	Low	
56B,56C,56D: Chautauqua	 			 	  Moderate	  Moderate	Moderate	
57A,57B,57C: Busti	 			 	  High	    High	Low	
58B,58C: Rushford	    Fragipan	14-28	8-24	    Noncemented	Moderate	    Moderate	Moderate	
59B,59C,59D: Yorkshire	    Fragipan	16-30	12-38	    Noncemented	Moderate	    Moderate	Moderate	
60A,60B,60C,60D: Napoli	    Fragipan	12-27	     14-40	    Noncemented	High	    High 	Moderate	
61B,61C,61D,61E,61F: Schuyler	   			   	Moderate	    Moderate	  High	
62B,62C,62D: Mardin	    Fragipan	14-26	15-56	    Noncemented	  Moderate	    Moderate	Moderate	
63B,63C,63D: Langford	    Fragipan	15-28	9-44	  Noncemented	  Moderate	  Moderate	Low	
64C: Mardin	    Fragipan	14-26	     15-56	    Noncemented	  Moderate	    Moderate	    Moderate	
66B: Volusia	    Fragipan	10-22	20-64	    Noncemented	High	    High	Moderate	
67A,67B: Dalton	    Fragipan	12-22	20-50	    Noncemented	    High	    High	Moderate	

	T	D t '				D. D. C.	
Map symbol	 	Restric	tive layer		   Potential	Risk of	corrosion
and soil name		Depth			for	Uncoated	
	Kind	to top	Thickness	Hardness	frost action	steel	Concrete
603 60D 60G		In	In				
68A,68B,68C: Volusia	  Fragipan 	10-22	   20-64 	  Noncemented 	  High 	  High 	  Moderate 
69A,69B,69C: Erie	  Fragipan	10-21	10-48	Noncemented	    High	    High	Low
71E,71F: Mongaup	 	20-40	   	    Indurated	    Moderate	    Low	    High
Mongaup		20-40	 	Induraced	Moderate	LOW	nigh
72B,72C,72D,72E,72F: Towerville	  Bedrock (lithic)	20-40	 	Strongly cemented	  Moderate	  Moderate	  High
73B,73C: Gretor	  Bedrock (lithic)	20-40	   	    Strongly cemented	  High	    High	    High
74: Ashville				   	    High	    High	Low
75: Alden		   	   		    High	    High	Low
76A,76B,76C: Orpark	    Bedrock (lithic)	20-40	   	    Strongly cemented	    High	    High	    High
77A: Chippewa	    Fragipan	8-20	     8-36	    Noncemented	    High	    High	    Moderate
78A,78B,78C,78D: Hornell	  Bedrock   (paralithic)	     20-40 	     	  Weakly cemented	    High 	    High 	    High 
78F: Hornell	    Bedrock   (paralithic)	     20-40 	   	  Weakly cemented	    High 	    High 	    High 
Hudson	 			 	  Moderate	  High 	Low
79B,79C,79D,79E,79F: Mongaup	    Bedrock (lithic)	20-40	   	    Indurated	    Moderate	Low	    High
80A,80B,80C: Fremont		   	   	   	    High	    High	    High
81B,81C,81D,81E: Varysburg	   	   	   	     	    Moderate 	    High 	    Moderate 

Table 25.-Soil Features-Continued

Table 25.-Soil Features-Continued

Map symbol		Restric	tive layer		Potential	Risk of corrosion		
and soil name	Kind	Depth to top	  Thickness	Hardness	for frost action	Uncoated steel	Concrete	
	İ	In	In				i	
32F: Rock outcrop	  Bedrock (lithic)	0-0		  Indurated	None			
Manlius	  Bedrock (lithic)	20-40		  Indurated	  Moderate	Low	High	
34B,84C: Elko	    Fragipan	     18-30	     30-48	    Noncemented	    Moderate	    Moderate	    High	
35B,85C,85D: Onoville	    Fragipan	     16-36	     20-50	    Noncemented	    Moderate	    Moderate	    High	
86B,86C,86D: Eldred	   			   	    Moderate 	    High	    High	
37B,87C: Shongo	    Fragipan 	16-30	20-50	    Noncemented 	    High 	  High 	High	
88A,88B,88C,88D: Ivory				 	    High	    High	High	
39B,89C: Portville	  Fragipan	12-36	20-50	  Noncemented	  High	  High	Moderate	
90A,90B: Brinkerton	    Fragipan	11-30	8-47	    Noncemented	    High	    High	  High	
91A: Palms				   	    High	    High	Low	
92: Carlisle	   			   	    High	    High	Low	
93: Saprists, inundated				   	    High	    High	Low	
94B,94C: Frewsburg	  Bedrock (lithic)	20-40		  Strongly cemented	  High	  High	High	
95B,95C,95D,95E,95F: Mandy	  Bedrock (lithic)	20-40		    Indurated	    Moderate	Low	High	
96B,96C,96D,96E,96F: Carrollton	    Bedrock (lithic)	20-40		    Strongly cemented	    Moderate	Low	  High	
97B,97C,97D,97E,97F: Kinzua	   			   	    Moderate	    Low	    High	
98D,98E: Kinzua					    Moderate	Low	High	

Map symbol		Restric	tive layer		   Potential	Risk of corrosion		
and soil name	     Kind	Depth to top	  Thickness	Hardness	for for frost action	Uncoated steel	   Concrete	
		In	In					
99B,99C,99D: Buchanan	  Fragipan	20-36	   12-50	  Noncemented	Moderate	  Moderate	  High	
		İ	į			į	j	
100: Udorthents			 		  Moderate	  Moderate	  Moderate	
101:	İ		ļ i	l I		 	İ	
Udorthents, refuse substratum	   		   	   	    Moderate	    Moderate	    Moderate	
Bubberaeum	İ							
102C: Mandy	  Bedrock (lithic)	20-40	j 	  Indurated	  Moderate	  Low	  High	
Rock outcrop	Bedrock (lithic)	0-0	 	  Indurated	  None	 	 	
103C: Knapp Creek	  Bedrock (lithic)	40-60		  Indurated	  Moderate	Low	  High	
Rock outcrop	  Bedrock (lithic)	0-0	 	  Indurated 	None	 	 	
104B,104C,104D,104E:			 	 		 		
Flatiron					Moderate	Low	High	
108D,108E,108F: Hartleton	  Bedrock (lithic)	40-60	 	  Indurated	  Moderate	Low	  High	
131:						 		
Lamson					High	High	Low	
132B,132C:	 		 			 	 	
Wiscoy	Fragipan	8-20	10-32	Noncemented	High	High	Moderate	
135C,135D,135E:							İ	
Hudson					Moderate	High	Low	
140D,140E:	 			 		 	 	
Dunkirk					High	Low	Low	
185C,185D:			 			 	 	
Onoville	Fragipan	16-36	20-50	Noncemented	Moderate	Moderate	High	
187B,187C:							İ	
Shongo	Fragipan	16-30	20-50	Noncemented	High	High 	High 	
188B,188C,188D:	İ					İ	İ	
Cavode	Bedrock (lithic)	60-72		Indurated	High	High	High	
	I			l				

Table 25.—Soil Features—Continued

Table 25.—Soil Features—Continued

Map symbol		Restric	tive layer	   Potential	Risk of corrosion		
and soil name		Depth			for	Uncoated	
	Kind	to top	Thickness	Hardness	frost action	steel	Concrete
		In	In				
189B,189C:	į	İ	i	İ	İ		İ
Portville	Fragipan	12-36	20-50	Noncemented	High	High	Moderate
.95C,195D,195E:	 				 		
Mandy	Bedrock (lithic)	20-40		Indurated	Moderate	Low	High
199C,199D:				 	 	 	
Buchanan	Fragipan	20-36	12-50	Noncemented	Moderate	Moderate	High
89B,289C,289D,289E,							
89F:	ļ						
Ceres	Bedrock (lithic)	40-60		Strongly cemented	Moderate	Low	High
100:					 		
Wakeville					High	High	Low
196B,496C,496D,496E,							
96F:							
Gilpin	Bedrock (lithic)	20-40		Strongly cemented	Moderate	Low	High
197D,497E,497F:							
Rayne				 	Moderate	Low	High
198E:							İ
Rayne	 			 	Moderate	Low 	High 
300:							ļ
Holderton	 			 	High 	High 	Low
PG:							
Pits, gravel	 			 	Low 	 	
Jr:							
Urban land	 			 	None	<b></b>	
<b>1</b> :							
Water							

Table 26.—Relationship Between Parent Material, Position, and Drainage of Soil Series

			Moderately	Somewhat		Very
Parent material and soil characteristics*	Temp	Well	well	poorly	Poorly	poorly
	Regime	drained	drained	drained	drained	drained

## SOILS ON UPLANDS

Very deep, moderately coarse textured glacial till	  mesic  frigid	  Chadakoin  Franklinville	  Chautauqua 	  Busti 	  Ashville 	   
Very deep, moderately fine textured, glacial till with 18 to 35 percent clay	  mesic 		  Schuyler 	Fremont	  Ashville 	  Alden 
in the subsoil	frigid		Salamanca	Almond	İ	į
Very deep, moderately fine textured, glacial till with 27 to 35 percent clay in the subsoil	  mesic   		     	Darien	     	     
Very deep, moderately fine textured, glacial till with a fragipan	  mesic 		  Langford 	Erie	   	     
Very deep, medium textured glacial till	mesic		Mardin	Volusia	  Chippewa	
with an acid fragipan	frigid		Willdin		 	 
Very deep, moderately fine textured glacial till with 18 to 35 percent clay in the subsoil and acid fragipan	frigid   		Yorkshire	Napoli 		     
Very deep, medium textured glacial till with a fragipan over lacustrine silts	  mesic 		  Rushford 	Wiscoy	   	
Very deep, medium textured glacial till with an acid fragipan overlain with 15 to 36 inch silt mantle	  mesic   		  Canaseraga   	Dalton		     
Moderately deep, medium textured glacial till, 20 to 40 inches over dark shale bedrock	mesic 	Manlius   	     			
Moderately deep, medium textured glacial till, 20 to 40 inches over sandstone and siltstone bedrock	frigid   	Mongaup	     		 	
Moderately deep, moderately fine textured glacial till with 18 to 35 percent clay in			  Towerville 	Orpark		   
the subsoil, 20 to 40 inches over bedrock	frigid 		Ischua 	Gretor		 

Table 26.—Relationship Between Parent Material, Position, and Drainage of Soil Series—Continued

Parent material and soil characteristics*	  Temp  Regime	  Well  drained	Moderately well drained	Somewhat  poorly  drained	  Poorly  drained	Very  poorly  drained
		SOILS ON UPLA	ANDS			
Moderately deep, fine textured glacial till, with greater than 35 percent clay	  mesic			  Hornell		
in the subsoil, 20 to 40 inches over bedrock	  frigid 			  Hornellsville	   	
SOILS ON	OUTWASH I	PLAINS, TERRA	CES, and ALLUVI	IAL FANS		
Very deep, coarse textured gravelly material over stratified sand and gravel	  mesic	Chenango	Castile	  Red Hook		  Halsey
Very deep, moderately coarse textured glacio-fluvial material	mesic	Valois			    -	
Very deep, coarse textured gravelly naterial over clayey lacustrine deposits	  mesic 		  Varysburg		     	
soii	S ON LACU	STRINE PLAINS	AND SANDY DEL	TAS		
Very deep, fine textured lacustrine deposits with greater than 35 percent clay in the subsoil	  mesic 		  Hudson 	Rhinebeck	  Canadice 	
Very deep, fine textured lacustrine deposits with greater than 35 percent clay in the subsoil underlain with glacial till at depths of 20 to 40 inches				Churchville	     	
Very deep, moderately fine textured Lacustrine silty deposits with 18 to 35 percent clay in the subsoil	  mesic   	Dunkirk	Collamer	  Niagara   	  Canandaigua   silt loam 	Canandaio
Very deep, moderately fine textured Lacustrine silty deposits overlying sand and or gravel at depths of 20 to 40 inches	  mesic   	Allard	Olean	Swormville  -	  Getzville   	
deposits with less than 18 percent clay	  mesic   	Unadilla	Scio	Tonawanda	     	
Very deep, medium textured lacustrine deposits with less than 18 percent clay in the subsoil	mesic     	Unadilla     	Scio	Tonawanda     	       	

Soil	
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			Moderately	Somewhat		Very
Parent material and soil characteristics*	Temp	Well	well	poorly	Poorly	poorly
	Regime	drained	drained	drained	drained	drained

## SOILS ON LACUSTRINE PLAINS AND SANDY DELTAS

Table 26.—Relationship Between Parent Material, Position, and Drainage of Soil Series-Continued

	T					1
Very deep, coarse silty lacustrine deposits, with a fragipan	mesic		Williamson	  Wallington 		
Very deep, moderately fine textured lacustrine silty deposits with 18 to 35 percent clay content in the subsoil with bedrock at depths of 40 to 60 inches	mesic 			Barcelona		
Very deep, coarse and moderately coarse textured sandy deposits with less than 18 percent clay	  mesic   	Colonie	Elnora	  Minoa   	  Lamson   	

## SOILS ON RESIDUAL AND COLLUVIAL MATERIALS

	I		T	1		1
Very deep, moderately fine textured residual soil with 18 to 35 percent clay	mesic	Rayne				i I
in the subsoil	frigid	Kinzua	Eldred			
Very deep, moderately fine textured colluvial with 18 to 35 percent clay in	mesic		Buchanan	Portville	Brinkerton	   
the subsoil, with an acid fragipan	frigid		Onoville	Shongo		İ
Very deep, medium textured residual soil with 18 to 35 percent clay in the subsoil with an acid fragipan			  Elko   			     
Very deep, fine textured residual soils with greater than 35 percent clay in the subsoil	mesic			Cavode		
	frigid			Ivory		
Very deep, coarse textured residual soil from sandstone conglomerate with 10 to 18 percent clay in the subsoil	! -	Flatiron	     			     
Deep coarse textured residual soil from sandstone conglomerate with 10 to 18 percent clay in the subsoil	  frigid   	  Knapp Creek 	   	   		     

Parent material and soil characteristics*	  Temp  Regime	  Well  drained	Moderately  well  drained	Somewhat  poorly  drained	  Poorly  drained	Very  poorly  drained
SOIL	S ON RESIDU	JAL AND COLLU	VIAL MATERIALS	3		
Deep, moderately fine textured red residual soils with 18 to 35 percent clay in the subsoil with bedrock at a depth of 40 to 60 inches	  frigid   	Ceres				
Deep, medium textured residual soils with 18 to 27 percent clay in the subsoil with bedrock at a depth of 40 to 60 inches	  mesic   	  Hartleton				
Moderately deep, moderately fine textured residual soils with 18 to 35 percent clay in the subsoil, 20 to 40 inches over		Gilpin				
bedrock  Moderately deep, medium textured residual soils with 10 to 27 percent clay in the subsoil, 20 to 40 inches over bedrock	frigid    frigid   	Carrollton     Mandy 		Frewsburg		
	SOILS	ON FLOOD PL	AINS			
Very deep, medium textured neutral and mildly alkaline alluvial sediments	  mesic	  Hamlin	  Teel	  Wakeville	  Wayland	
Very deep, medium textured slightly acid alluvial sediments	  mesic 	  Tioga 	  Middlebury 	  Holderton		
Very deep, medium textured silt mantle over sand and gravel	  mesic 		  Pawling 	   	  Wyalusing	
Very deep, medium textured acid alluvial sediments	  mesic   	Pope	  Philo 		Atkins	
	SOILS	IN SWAMP AND	BOGS			I
Very deep organic material more than 51 inches thick	  mesic					  Carlisl
Moderately deep organic material 16 to 51 inches thick over loamy mineral soil	  mesic 					  Palms

1100 Soil Survey

Table 27.—Taxonomic Classification of the Soils

(An asterisk in the first column indicates a taxadjunct to the series. See text for a description of those characteristics that are outside the range of the series.)

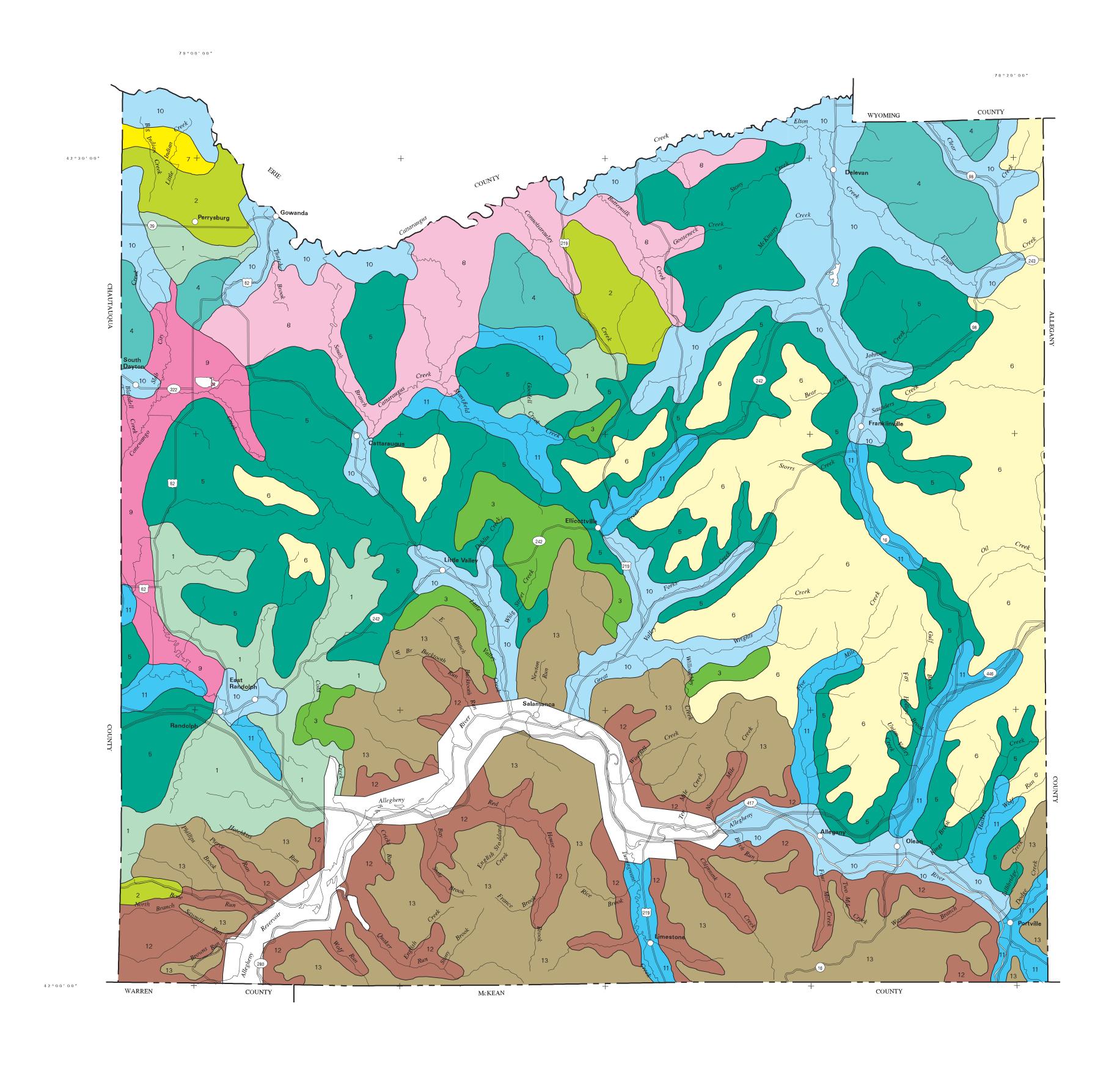
Soil name	Family or higher taxonomic class
Alden	  Fine-loamy, mixed, active, nonacid, mesic Mollic Endoaquepts
Allard	Coarse-silty over sandy or sandy-skeletal, mixed, active, mesic Typic   Dystrudepts
Almond	Fine-loamy, mixed, semiactive, acid, frigid Aeric Endoaquepts
Ashville	Fine-loamy, mixed, active, nonacid, mesic Typic Endoaquepts
	Fine-loamy, mixed, active, acid, mesic Fluvaquentic Endoaquepts
	Fine-silty, mixed, active, mesic Aeric Endoaqualfs
Brinkerton	Fine-silty, mixed, superactive, mesic Typic Fragiaqualfs
	Fine-loamy, mixed, semiactive, mesic Aquic Fragiudults
	Coarse-loamy, mixed, active, nonacid, mesic Aeric Endoaquepts
	Fine, illitic, mesic Typic Endoaqualfs
_	Fine-silty, mixed, active, nonacid, mesic Mollic Endoaquepts
	Coarse-silty, mixed, active, mesic Typic Fragiudepts
	Euic, mesic Typic Haplosaprists
	Fine-loamy, mixed, active, frigid Typic Hapludults
	Loamy-skeletal, mixed, active, mesic Aquic Dystrudepts
	Fine, mixed, active, mesic Aeric Endoaquults
	Fine-loamy, mixed, semiactive, frigid Typic Hapludults  Coarse-loamy, mixed, superactive, mesic Typic Dystrudepts
	Coarse-loamy, mixed, superactive, mesic Typic Dystrucepts  Coarse-loamy, mixed, active, mesic Aquic Dystrucepts
=	Loamy-skeletal, mixed, superactive, mesic Typic Dystrudepts
_	Fine-loamy, mixed, active, mesic Typic Fragiaquepts
	Fine, illitic, mesic Aeric Endoaqualfs
	Fine-silty, mixed, active, mesic Glossaquic Hapludalfs
	Mixed, mesic Lamellic Udipsamments
	Coarse-silty, mixed, active, mesic Aeric Fragiaquepts
	Fine-loamy, mixed, active, mesic Aeric Endoaqualfs
	Fine-silty, mixed, active, mesic Glossic Hapludalfs
	Fine-loamy, mixed, semiactive, frigid Aquic Hapludults
31ko	Fine-loamy, mixed, semiactive, frigid Aquic Fragiudults
Ilnora	Mixed, mesic Aquic Udipsamments
	Fine-loamy, mixed, active, mesic Aeric Fragiaquepts
Platiron	Coarse-loamy, mixed, active, frigid Typic Dystrudepts
luvaquents	! <del>-</del>
	Coarse-loamy, mixed, superactive, frigid Typic Dystrudepts
	Fine-loamy, mixed, semiactive, acid, mesic Aeric Endoaquepts
_	Fine-loamy, mixed, active, frigid Aeric Endoaquults
Getzville	Fine-silty over sandy or sandy-skeletal, mixed, active, nonacid, mesic   Aeric Endoaquepts
	Fine-loamy, mixed, active, mesic Typic Hapludults
	Fine-loamy, mixed, active, acid, frigid Aeric Endoaquepts
Halsey	Coarse-loamy over sandy or sandy-skeletal, mixed, active, nonacid, mesi   Mollic Endoaquepts
	Coarse-silty, mixed, active, mesic Dystric Fluventic Eutrudepts
	Loamy-skeletal, mixed, active, mesic Typic Hapludults
	Coarse-loamy, mixed, active, nonacid, mesic Fluvaquentic Endoaquepts
Hornell	Fine, illitic, acid, mesic Aeric Endoaquepts
	Fine, illitic, acid, frigid Aeric Endoaquepts
	Fine, illitic, mesic Glossaquic Hapludalfs
	Fine-loamy, mixed, active, frigid Aquic Dystrudepts
	Fine, mixed, subactive, frigid Aeric Endoaquults
	Fine-loamy, mixed, active, frigid Typic Hapludults
	Loamy-skeletal, mixed, active, frigid Typic Dystrudepts
	Coarse-loamy, mixed, active, nonacid, mesic Aeric Endoaquepts
	Fine-loamy, mixed, active, mesic Typic Fragiudepts
	Loamy-skeletal, mixed, active, frigid Typic Dystrudepts
	Loamy-skeletal, mixed, active, mesic Typic Dystrudepts  Coarse-loamy, mixed, active, mesic Typic Fragiudepts
	Coarse-loamy, mixed, active, mesic Typic Fragiudepts  Coarse-loamy, mixed, active, mesic Fluvaquentic Eutrudepts
	Coarse-loamy, mixed, active, mesic Fitvaquentic Entrudepts

Table 27.—Taxonomic Classification of the Soils—Continued

Soil name	Family or higher taxonomic class				
5 -	Coarse-loamy, mixed, active, frigid Typic Dystrudepts				
-	Fine-loamy, mixed, active, frigid Aeric Fragiaqualfs				
_	- Fine-silty, mixed, active, mesic Aeric Endoaqualfs				
Olean	Fine-silty over sandy or sandy-skeletal, mixed, active, mesic Aquic   Hapludalfs				
Onoville	Fine-loamy, mixed, subactive, frigid Aquic Fragiudults				
Orpark	Fine-loamy, mixed, semiactive, acid, mesic Aeric Endoaquepts				
Palms	Loamy, mixed, euic, mesic Terric Haplosaprists				
Pawling	Coarse-loamy over sandy or sandy-skeletal, mixed, active, mesic   Fluvaquentic Eutrudepts				
Philo	Coarse-loamy, mixed, active, mesic Fluvaquentic Dystrudepts				
	Coarse-loamy, mixed, active, mesic Fluventic Dystrudepts				
	Fine-loamy, mixed, active, mesic Aeric Fragiaqualfs				
	Fine-loamy, mixed, active, mesic Typic Hapludults				
	Coarse-loamy, mixed, superactive, nonacid, mesic Aeric Endoaquepts				
	Fine, illitic, mesic Aeric Endoaqualfs				
	Coarse-loamy, mixed, active, mesic Typic Fragiudepts				
	Fine-loamy, mixed, active, frigid Aquic Dystrudepts				
Saprists, inundated					
-	Fine-loamy, mixed, superactive, mesic Aquic Dystrudepts				
	Coarse-silty, mixed, active, mesic Aquic Dystrudepts				
	Fine-loamy, mixed, active, frigid Aeric Fragiaqualfs				
	Fine-silty over sandy or sandy-skeletal, mixed, active, mesic Aeric				
	Endoaqualfs				
	Coarse-silty, mixed, active, mesic Fluvaquentic Eutrudepts				
	Coarse-loamy, mixed, active, mesic Dystric Fluventic Eutrudepts				
	Coarse-silty, mixed, active, nonacid, mesic Aeric Endoaquepts				
	Fine-loamy, mixed, superactive, mesic Aquic Dystrudepts				
Udifluvents	Udifluvents				
Udorthents	Udorthents				
Unadilla	Coarse-silty, mixed, active, mesic Typic Dystrudepts				
Valois	Coarse-loamy, mixed, superactive, mesic Typic Dystrudepts				
Varysburg	Loamy-skeletal over clayey, mixed, active, mesic Glossaquic Hapludalfs				
Volusia	Fine-loamy, mixed, active, mesic Aeric Fragiaquepts				
Wakeville	Coarse-silty, mixed, active, nonacid, mesic Fluvaquentic Endoaquepts				
Wallington	Coarse-silty, mixed, active, mesic Aeric Fragiaquepts				
Wayland	Fine-silty, mixed, active, nonacid, mesic Fluvaquentic Endoaquepts				
	Coarse-loamy, mixed, active, frigid Typic Fragiudepts				
	Coarse-silty, mixed, active, mesic Typic Fragiudepts				
	Fine-loamy, mixed, active, mesic Aeric Fragiaquepts				
	Coarse-loamy over sandy or sandy-skeletal, mixed, active, nonacid, mesic				
<u> </u>	Fluvaquentic Endoaquepts				
	Fine-loamy, mixed, active, frigid Aquic Fragiudalfs				

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LEGEND

UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE
CORNELL UNIVERSITY AGRICULTURAL EXPERIMENT STATION

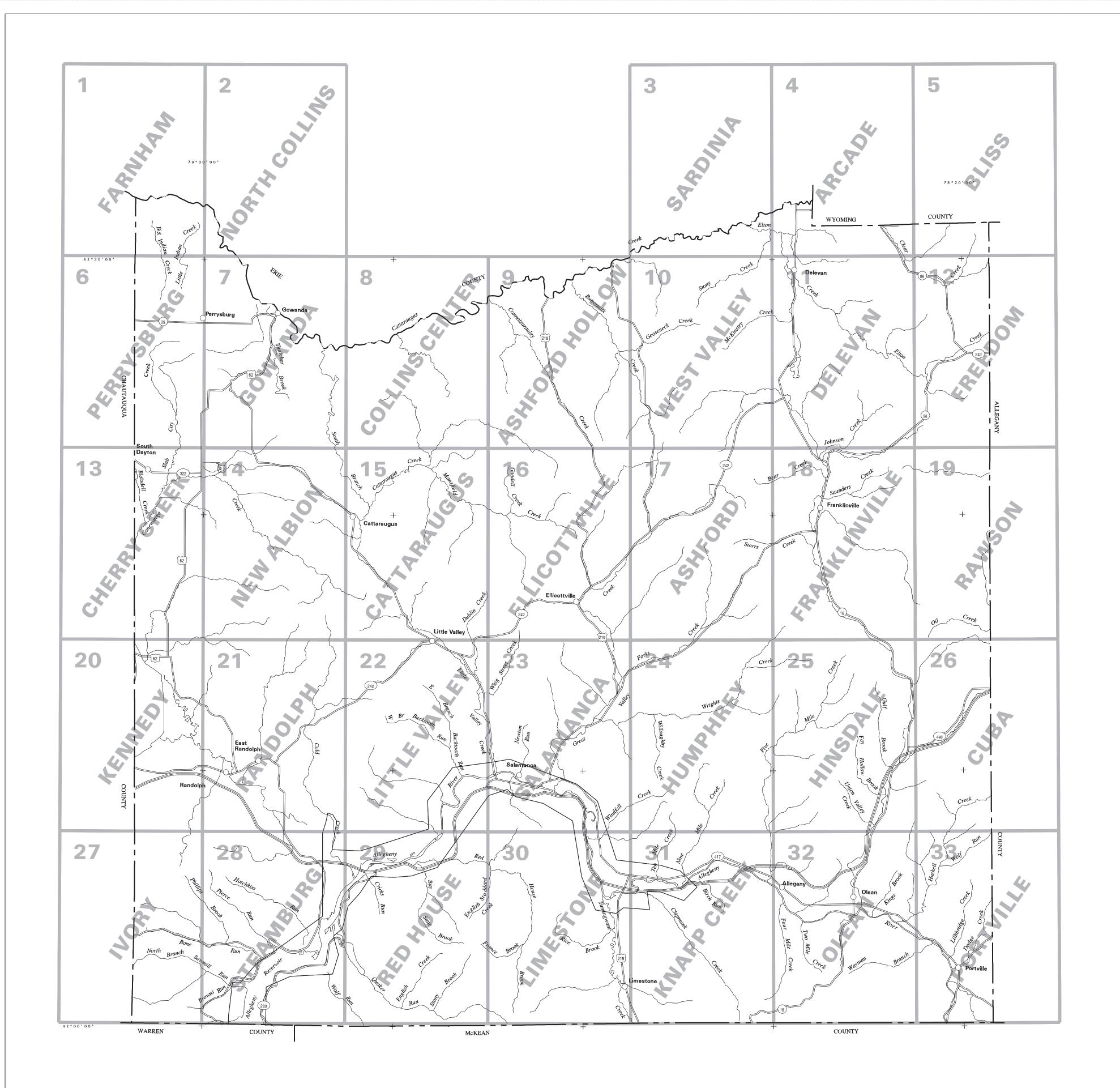
GENERAL SOIL MAP
CATTARAUGUS COUNTY, NEW YORK

1 0 1 2 3 4 5 6

KILOMETERS

SCALE = 1:155000

Each area outlined on this map consists of more than one kind of soll. The map is thus meant for general planning rather than a basi



MILES

1 0 1 2 3 4 5 6

KILOMETERS

SCALE = 1:155000

## SOIL LEGEND

## SYMBOL SYMBOL NAME SYMBOL NAME NAME Udifluvents and Fluvaquents, frequently flooded Canaseraga silt loam, 8 to 15 percent slopes Eldred silt loam, 8 to 15 percent slopes Hamlin silt loan Chadakoin channery silt loam, 3 to 8 percent slopes 86D Eldred silt loam, 15 to 25 percent slopes Shongo silt loam, 3 to 8 percent slopes Tiona silt loam 51C Chadakoin channery silt loam, 8 to 15 percent slopes 87B Chadakoin channery silt loam, 15 to 25 percent slopes Teel silt loam 87C Shongo silt loam, 8 to 15 percent slopes Wayland silt loam Chadakoin channery silt loam, 25 to 35 percent slopes 88A Ivory silt loam, 0 to 3 percent slopes Wyalusing silt loam, 0 to 3 percent slopes Chadakoin channery silt loam, 35 to 50 percent slopes 88B Ivory silt loam, 3 to 8 percent slopes Philo silt loam, 0 to 3 percent slopes Valois gravelly silt loam, 3 to 8 percent slopes 88C 88D Ivory silt loam, 8 to 15 percent slopes Middlebury silt loam Valois gravelly silt loam, 8 to 15 percent slopes Ivory silt loam, 15 to 25 percent slopes 89B Pawling silt loam Valois gravelly silt loam, 15 to 25 percent slopes Portville silty clay loam, 3 to 8 percent slopes Atkins silt loam Valois gravelly silt loam, 25 to 35 percent slopes 89C 90A Portville silty clay loam, 8 to 15 percent slopes Ischua channery silt loam, 3 to 8 percent slopes Valois gravelly silt loam, 35 to 50 percent slopes Brinkerton silt loam, 0 to 3 percent slopes 11C 11D Ischua channery silt loam, 8 to 15 percent slopes Valois-Volusia-Mardin complex, 3 to 15 percent slopes Brinkerton silt loam, 3 to 8 percent slopes Darien silt loam, 0 to 3 percent slopes 91A Ischua channery silt loam, 15 to 25 percent slopes Palms muck, 0 to 2 percent slopes Ischua channery silt loam, 25 to 35 percent slopes Darien silt loam, 3 to 8 percent slopes Carlisle muck Ischua channery silt loam, 35 to 50 percent slopes 55C Darien silt loam, 8 to 15 percent slopes Saprists, inundated Franklinville channery silt loam, 3 to 8 percent slopes Chautauqua silt loam, 3 to 8 percent slopes Frewsburg silt loam, 3 to 8 percent slopes 12C 12D Franklinville channery silt loam, 8 to 15 percent slopes Chautauqua silt loam, 8 to 15 percent slopes 94C 95B Frewsburg silt loam, 8 to 15 percent slopes Franklinville channery silt loam, 15 to 25 percent slopes Chautaugua silt loam, 15 to 25 percent slopes Mandy channery silt loam, 3 to 8 percent slopes Busti silt loam, 0 to 3 percent slopes 12E 14B Franklinville channery silt loam, 25 to 35 percent slopes Mandy channery silt loam, 8 to 15 percent slopes Hornellsville silt loam, 3 to 8 percent slopes 57B Busti silt loam, 3 to 8 percent slopes 95D Mandy channery silt loam, 15 to 25 percent slopes 14C 15B Hornellsville silt loam, 8 to 15 percent slopes Busti silt loam, 8 to 15 percent slopes Mandy channery silt loam, 25 to 35 percent slopes Willdin channery silt loam, 3 to 8 percent slopes Rushford channery silt loam, 3 to 8 percent slopes 95F 96B Mandy channery silt loam, 35 to 50 percent slopes Willdin channery silt loam, 8 to 15 percent slopes Rushford channery silt loam, 8 to 15 percent slopes Carrollton channery silt loam, 3 to 8 percent slopes 15D Willdin channery silt loam, 15 to 25 percent slopes Yorkshire channery silt loam, 3 to 8 percent slopes 96C 96D Carrollton channery silt loam, 8 to 15 percent slopes Almond silt loam, 0 to 3 percent slopes Yorkshire channery silt loam, 8 to 15 percent slopes Carrollton channery silt loam, 15 to 25 percent slopes 16B Almond silt loam, 3 to 8 percent slopes Yorkshire channery silt loam, 15 to 25 percent slopes Carrollton channery silt loam, 25 5o 35 percent slopes 16C Almond silt loam, 8 to 15 percent slopes 60A Napoli silt loam, 0 to 3 percent slopes 96F Carrollton channery silt loam, 35 to 50 percent slopes Kinzua channery silt loam, 3 to 8 percent slopes Salamanca silt loam, 3 to 8 percent slopes Napoli silt loam, 3 to 8 percent slopes Salamanca silt loam, 8 to 15 percent slopes Napoli silt loam, 8 to 15 percent slopes Kinzua channery silt loam, 8 to 15 percent slopes 97D Salamanca silt loam, 15 to 25 percent slopes Napoli silt loam, 15 to 25 percent slopes Kinzua channery silt loam, 15 to 25 percent slopes 17F Salamanca silt loam, 25 to 35 percent slopes Schuyler silt loam, 3 to 8 percent slopes 97E 97F Kinzua channery silt loam, 25 to 35 percent slopes Pope fine sandy loam, 0 to 3 percent slopes Schuyler silt loam, 8 to 15 percent slopes Kinzua channery silt loam, 35 to 60 percent slopes 19A Olean silt loam, 0 to 3 percent slopes Schuyler silt loam, 15 to 25 percent slopes Kinzua channery silt loam, 15 to 25 percent slopes, extremely bouldery 19B Olean silt loam, 3 to 8 percent slopes 61E Schuyler silt loam, 25 to 35 percent slopes 98E 99B Kinzua channery silt loam, 25 to 35 percent slopes, extremely bouldery Unadilla silt loam, 0 to 3 percent slopes Schuyler silt loam, 35 to 50 percent slopes Buchanan silt loam, 3 to 8 percent slopes 20B Unadilla silt loam, 3 to 8 percent slopes Mardin channery silt loam, 3 to 8 percent slopes Mardin channery silt loam, 8 to 15 percent slopes 99C 99D Buchanan silt loam, 8 to 15 percent slopes Buchanan silt loam, 15 to 25 percent slopes Unadilla silt loam, 8 to 15 percent slopes 20D Unadilla silt loam, 15 to 25 percent slopes Mardin channery silt loam, 15 to 25 percent slopes 100 Udorthents, loamy-skeletal Allard silt loam, 0 to 3 percent slopes Langford channery silt loam, 3 to 8 percent slopes 101 Udorthents, refuse substratum 22B 25A Allard silt loam, 3 to 8 percent slopes Langford channery silt loam, 8 to 15 percent slopes Mandy-Rock outcrop complex, 3 to 15 percent slopes 63D Chenango gravelly silt loam, 0 to 3 percent slopes Langford channery silt loam, 15 to 25 percent slopes 103C Knapp Creek-Rock outcrop complex, 3 to 15 percent slopes Mardin channery silt loam, 8 to 15 percent slopes, very stony Chenango gravelly silt loam, 3 to 8 percent slopes Flatiron loamy fine sand, 3 to 8 percent slopes, extremely bouldery 25C Chenango gravelly silt loam, 8 to 15 percent slopes Volusia channery silt loam, 3 to 8 percent slopes, very stony 104C Flatiron loamy fine sand, 8 to 15 percent slopes, extremely boulder 25D Dalton silt loam, 0 to 3 percent slopes Chenango gravelly silt loam, 15 to 25 percent slopes Flatiron loamy fine sand, 15 to 25 percent slopes, extremely bouldery Chenango gravelly silt loam, 25 to 35 percent slopes Chenango gravelly silt loam, 35 to 50 percent slopes Dalton silt loam, 3 to 8 percent slopes 104E Flatiron loamy fine sand, 25 to 35 percent slopes, extremely bouldery Volusia channery silt loam, 0 to 3 percent slopes 108D Hartleton channery silt loam, 15 to 25 percent slopes Hartleton channery silt loam, 25 to 35 percent slopes Chenango channery silt loam, fan, 0 to 3 percent slopes Volusia channery silt loam, 3 to 8 percent slopes 26B Chenango channery silt loam, fan. 3 to 8 percent slopes 68C Volusia channery silt loam, 8 to 15 percent slopes 108F Hartleton channery silt loam, 35 to 50 percent slopes Castile gravelly silt loam, 0 to 3 percent slopes Erie channery silt loam, 0 to 3 percent slopes Lamson very fine sandy loam 131 Wiscoy channery silt loam, 3 to 8 percent slopes Wiscoy channery silt loam, 8 to 15 percent slopes 27B Castile gravelly silt loam, 3 to 8 percent slopes Erie channery silt loam, 3 to 8 percent slopes 132B Scio silt loam, 0 to 3 percent slopes Erie channery silt loam, 8 to 15 percent slopes 132C 29A Chenango fine gravelly sandy loam, 0 to 3 percent slopes Mongaup channery silt loam, 25 to 35 percent slopes, very stony 135C Hudson silt loam, 8 to 15 percent slopes Chenango fine gravelly sandy loam, 3 to 8 percent slopes Mongaup channery silt loam, 35 to 70 percent slopes, very stony 135D Hudson silt loam, 15 to 25 percent slopes Chenango fine gravelly sandy loam, 8 to 15 percent slopes Towerville silt loam, 3 to 8 percent slopes Hudson silt loam, 25 to 35 percent slope 29D Chenango fine gravelly sandy loam, 15 to 25 percent slopes Towerville silt loam, 8 to 15 percent slopes 140D Dunkirk silt loam, 15 to 25 percent slopes Chenango fine gravelly sandy loam, 25 to 35 percent slopes Towerville silt loam, 15 to 25 percent slopes Dunkirk silt loam, 25 to 35 percent slopes 31B Collamer silt loam, 3 to 8 percent slopes Towerville silt loam, 25 to 35 percent slopes 185C Onoville silt loam, 8 to 15 percent slopes, extremely bouldery 31C Collamer silt loam, 8 to 15 percent slopes Towerville silt loam, 35 to 50 percent slopes 185D Onoville silt loam, 15 to 25 percent slopes, extremely bouldery Gretor channery silt loam, 3 to 8 percent slopes 32A 32B Churchville silt loam, 0 to 3 percent slopes 187B Shongo silt loam, 3 to 8 percent slopes, extremely bouldery Churchville silt loam, 3 to 8 percent slopes Gretor channery silt loam, 8 to 15 percent slopes 187C Shongo silt loam, 8 to 15 percent slopes, extremely bouldery 33A Wallington silt loam, 0 to 3 percent slopes Ashville silt loam Cavode silt loam, 3 to 8 percent slopes Getzville silt loam Alden mucky silt loam 188C Cavode silt loam, 8 to 15 percent slopes Rhinebeck silt loam, 0 to 3 percent slopes Orpark silt loam, 0 to 3 percent slopes Cavode silt loam, 15 to 25 percent slopes 35B Rhinebeck silt loam, 3 to 8 percent slopes Orpark silt loam, 3 to 8 percent slopes 189B 189C Portville silty clay loam, 3 to 8 percent slopes, extremely bouldery Rhinebeck silt loam, 8 to 15 percent slopes Orpark silt loam, 8 to 15 percent slopes Portville silty clay loam, 8 to 15 percent slopes, extremely bouldery Canadice silty clay loam Chippewa silt loam, 0 to 3 percent slopes Mandy channery silt loam, 3 to 15 percent slopes, extremely bouldery 37A Tonawanda silt loam, 0 to 3 percent slopes Hornell silt loam, 0 to 3 percent slopes 195D Mandy channery silt loam, 15 to 25 percent slopes, extremely bouldery Tonawanda silt loam, 3 to 8 percent slopes Hornell silt loam, 3 to 8 percent slopes Mandy channery silt loam, 25 to 50 percent slopes, extremely bouldery 38A Buchanan silt loam, 8 to 15 percent slopes, extremely bouldery Buchanan silt loam, 15 to 25 percent slopes, extremely bouldery Niagara silt loam, 0 to 3 percent slopes Hornell silt loam, 8 to 15 percent slopes 199C Niagara silt loam, 3 to 8 percent slopes Hornell silt loam, 15 to 25 percent slopes 199D 39A Halsev silt loam, 0 to 3 percent slopes Hornell and Hudson soils, 35 to 50 percent slopes 289B Ceres channery silt loam, 3 to 8 percent slopes Williamson silt loam, 0 to 3 percent slopes Mongaup channery silt loam, 3 to 8 percent slopes 289C Ceres channery silt loam, 8 to 15 percent slopes Williamson silt loam, 3 to 8 percent slopes 40B Mongaup channery silt loam, 8 to 15 percent slopes 289D Ceres channery silt loam, 15 to 25 percent slopes 40C Williamson silt loam, 8 to 15 percent slopes Mongaup channery silt loam, 15 to 25 percent slopes 289E Ceres channery silt loam, 25 to 35 percent slopes 41A Barcelona silt loam, 0 to 3 percent slopes Mongaup channery silt loam, 25 to 35 percent slopes Ceres channery silt loam, 35 to 50 percent slopes 41B Barcelona silt loam, 3 to 8 percent slopes Mongaup channery silt loam, 35 to 70 percent slopes 400 Wakeville silt loam Gilpin channery silt loam, 3 to 8 percent slopes Elnora fine sandy loam, 0 to 3 percent slopes Fremont silt loam, 0 to 3 percent slopes 496B 42B Elnora fine sandy loam, 3 to 8 percent slopes Fremont silt loam, 3 to 8 percent slopes 496C Gilpin channery silt loam, 8 to 15 percent slopes Fremont silt loam, 8 to 15 percent slopes Canandaigua silt loam 496D Gilpin channery silt loam, 15 to 25 percent slopes Canandaigua mucky silt loam Varysburg gravelly silt loam, 3 to 8 percent slopes 496E Gilpin channery silt loam, 25 to 35 percent slopes Canandaigua silt loam, acid substratum Varysburg gravelly silt loam, 8 to 15 percent slopes 496F Gilpin channery silt loam, 35 to 50 percent slopes Varysburg gravelly silt loam, 15 to 25 percent slopes Rayne channery silt loam, 15 to 25 percent slopes 47A Minoa very fine sandy loam, 0 to 3 percent slopes Varysburg gravelly silt loam, 25 to 35 percent slopes 497F Rayne channery silt loam, 25 to 35 percent slopes Colonie fine sandy loam, 0 to 3 percent slopes Rock outcrop-Manlius complex, 35 to 70 percent slopes Ravne channery silt loam, 35 to 50 percent slopes Colonie fine sandy loam, 3 to 8 percent slopes Elko silt loam, 3 to 8 percent slopes Rayne channery silt loam, 25 to 35 percent slopes, extremely bouldery Colonie fine sandy loam, 8 to 15 percent slopes Elko silt loam, 8 to 15 percent slopes 800 Holderton silt loam Red Hook silt loam, 0 to 3 percent slopes Onoville silt loam, 3 to 8 percent slopes Pits, gravel Canaseraga silt loam, 0 to 3 percent slopes Onoville silt loam, 8 to 15 percent slopes Urban land Canaseraga silt loam, 3 to 8 percent slopes Onoville silt loam, 15 to 25 percent slopes Eldred silt loam, 3 to 8 percent slopes

## FEATURE AND SYMBOL LEGEND FOR SOIL SURVEY

SOIL SURVEY FEATURES		CULTURAL FEATURES		HYDROGRAPHIC FEATURES	
SOIL DELINEATIONS AND SYMBOLS	70022 73054	BOUNDARIES			
Clay spot	*	County or parish		Perennial stream	Label only
Gravelly pit	X	Minor civil division			
Gravelly spot	••	Reservation (national forest or park, state forest or park)			
Gully	~~~~~	Limit of soil survey (label), denied access areas, or both			
Marsh or swamp	**	Field sheet matchline and neatline	<del></del>		
Mine or quarry	*	ROADEMBLEMS	~~~		
Rock outcrop	V	Federal	287 410		
Sandy spot	::	State	(52) (52) (347)		
Short steep slope		County, farm or ranch	1283		
Slide or slip	}				
Very stony spot	00				
Wet spot	Ý				
ADHOCFEATURES					
Silt spot	Θ				
Small alluvial fan	•				

**UNITED STATES** 

